

Using SiteMeter

McAFEE

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Chapter 1 *Introduction*

Welcome to SiteMeter—the enterprise metering solution that gives you complete control over software usage on your local area network!

SiteMeter is a member of McAfee's family of intuitive LAN management support tools, a group of network applications designed to reduce the cost of LAN ownership.

About SiteMeter

SiteMeter is the most comprehensive solution to software control available. Its host of features offer advanced metering capabilities that allow you to track, manage and even analyze the usage of your DOS, Windows, OS/2 and Macintosh applications. By using SiteMeter to set up enterprise metering, you can ensure the legality of your currently installed software and reduce your network software expenditures. In addition, SiteMeter's security features and numerous configuration options ensure that ultimately you, as the network administrator, retain control over application metering across your network.

Because McAfee has been perfecting software metering since 1988, you are purchasing the most comprehensive package available. For example, take SiteMeter's ability to meter suites of applications (e.g., Microsoft Office). With this feature, you can ensure accurate license compliance with groups of files that are governed by a single license agreement. SiteMeter also provides detailed reports with *all* the management information you need to make informed decisions about your network software. In addition to standard IPX routing, SiteMeter uses leading-edge technology to support wide-area metering using the TCP/IP protocol.

With SiteMeter, you can achieve a high level of software control without using workstation software. SiteMeter uses an NLM-based process that both eliminates workstation administration and improves security. This method involves the Proxy NLM directly and works as follows (you must be running NetWare 3.11 or later). Before a user fully loads an application, the Proxy NLM intercepts the request and verifies that the application requested is available. If the NLM grants permission, the user is permitted to use the application. The Proxy NLM does not consume any additional memory on the workstation and is the least intrusive method of providing software metering.

SiteMeter's Features

SiteMeter contains many features that can help you control network software usage:

- Full enterprise metering including:
 - license sharing and load balancing over IPX and TCP/IP
 - centralized enterprise administration
 - reporting of enterprise metering
 - enterprise application usage viewing
- Server-based metering for DOS, Windows, OS/2 and Macintosh programs without using a workstation agent
- Simple installation to avoid administrative burden
- Detailed reports containing the information you need to make important management decisions about your network software
- Graphic displays detailing software usage to monitor both those currently using an application and those waiting to access a metered application
- Flexible enforcement options to allow you to monitor usage without denying access to applications
- Suite metering for accurate enforcement of concurrent license agreements for suite applications such as Microsoft Office
- Real time trustee rights granting tied to application usage (masking) to control access to sensitive or critical network applications
- Ability to meter and control access to applications based on Novell group membership and on the time of day
- Option to allow VIP users access to applications regardless of license availability
- Queueback for metered applications to reserve licenses for users waiting in the queue
- Full NetWare Directory Services support

In addition to these capabilities, you can also access other McAfee management solutions from the SiteMeter console by choosing the appropriate tool bar button. The table below indicates which McAfee products can be accessed from SiteMeter and which manual you should refer to for usage instructions:

Tool Bar Button	Product	Manual
Remote	NetRemote	Using NetRemote
Tickets	LAN Support Center	Using LAN Support Center
NetShield	NetShield	Using NetShield
Refer to Chapter 3, “Getting Started” for instructions on using the tool bar.		
Note: Additional McAfee software sold separately.		

Environment

The following criteria must be met in order to run SiteMeter:

Server Requirements

- Network Operating System: Novell NetWare 3.11 or later
SiteMeter operates on Novell NetWare using IPX/SPX.
- Network Disk Space: 15 MB required; 25 MB recommended
- Btrieve Database Access: BTRIEVE.NLM and BSPXCOM.NLM versions 5.15 or later
- Server memory: 12 MB required; 16 MB or higher recommended
- CLIB.NLM version 3.12g

Administrator Console Requirements

- Operating System: DOS 5.0 or later
- User Interface: Microsoft Windows 3.1 or later (Enhanced mode) or Microsoft Windows for Workgroups 3.11 or later
- Btrieve Database Access: server based - BREQUEST.EXE 6.1 or later
SiteMeter includes BREQUEST.EXE version 6.10e and BTRIEVE.EXE version 5.10a.

You should verify that you are running the latest versions of the Btrieve files. Updated Btrieve files can be found on CompuServe in the Novell Libraries (GO NOVLIB), BRQ610.ZIP.

- CPU: 386SX or better
- RAM: 4 MB or higher
- Mouse: required for Reporting and the Usage Monitor
- Monitor: VGA or better

Workstation Requirements

- Operating System: DOS 3.3 or later, OS/2 2.1 or later, Macintosh System 7 or higher
- Macintosh: NetWare Client for Macintosh software, EtherTalk II (recommended)

Novell NetWare 3.11 File Server Requirements

The SMRPROXY.NLM shipping with SiteMeter (and BrightWorks) is **LSL based**—to run the SMRPROXY.NLM on NetWare 3.11 successfully, you must load the LSLENH.NLM on the file server. The LSLENH.NLM requires that PATCHMAN.NLM and the latest LAN drivers (.LAN) be loaded on the file server.

For Macintosh users, the NetWare for Macintosh Services must be installed and configured, and the Macintosh Name Space must be installed on the volume used for Macintosh applications.

The latest .LAN drivers require ETHERTSM.NLM to be loaded on the file server. (ETHERTSM.NLM is loaded for Ethernet network topologies. If you have a token ring network topology then TOKENTSM.NLM would be loaded instead of the ETHERTSM.NLM. Likewise, FDDITSM.NLM, RXNETTSM.NLM and PCN2LTSM.NLM are available for their respective topologies.) The ETHERTSM.NLM requires the MSM.NLM to be loaded.

In addition to the above NLMs, CLIB.NLM revision 3.12g or later must be loaded.

In short, the following new files are needed:

- CLIB.NLM version 3.12g
- MSM.NLM version 2.2
- LSLENH.NLM version 1.01
- PATCHMAN.NLM version 2.3

- ETHERTSM.NLM, TOKENTSM.NLM or RXNETTSM.NLM (depends on the topology used)
- Updated LAN drivers (i.e. NE2000.LAN).

Below is a sample AUTOEXEC.NCF file that illustrates which NLMs need to be loaded :

```
file server name vanwinkle
ipx internal net cafe

LOAD LSLENH <-- automatically loads PATCHMAN.NLM

LOAD NE2000 PORT=340 INT=5 <-- automatically loads
                                MSM.NLM and [ETHER]TSM.NLM

bind IPX to NE2000 net=10
```

Note: ETHERTSM.NLM is shown in brackets to emphasize that a different 'TSM.NLM' would be automatically loaded by NetWare for a different topology. The topology in this example is Ethernet as indicated by the loading of the NE2000.LAN.

CLIB.NLM version 3.12g is available on CompuServe in a self-extracting compressed file. To obtain this version of the CLIB.NLM, log on to CompuServe, GO NOVLIB (Novell Library forum), LIB 4 (Library 4) and download LIBUP3.EXE. The rest of the required files are available in the self-extracting compressed file LANDR3.EXE, which is also located on CompuServe. To obtain LANDR3.EXE, GO NOVFILES (Novell Files forum) and then download the file.

On the Internet, CLIB.NLM version 3.12g is available at the FTP.MCAFEE.COM site in the /pub/patches directory. You can login using your login or as "anonymous." In addition, the LIBUP3.EXE and LANDR3.EXE files also can be found at the BANTU.PROVO.NOVELL.COM site. On American Online, use the keyword "Novell" to locate this file.

Use the following procedure to update the file server.

1. Copy CLIB.NLM version 3.12g, LANDR3.EXE, LSLENH.NLM, PATCHMAN.NLM, *TSM.NLM, MSM.NLM, and the updated LAN drivers (*.LAN), into the SYS:SYSTEM directory.
2. Execute LANDR3.EXE in the SYS:SYSTEM directory.

Note: Make sure that all older files are marked "Read Write" so that they are overwritten by the new files. If the older files are marked "Read Only" they will not be overwritten. Refer to the STATS.DOC document for further information on the new files and/or special conditions. (This file now resides in your SYS:SYSTEM directory.)

3. Type 'Load Install' at the file server console DOS prompt.

4. Select 'Edit AUTOEXEC.NCF'.

The line LOAD LSLENH needs to be added before the load line of the LAN board and all *.LAN drivers (refer to the AUTOEXEC.NCF file example above).

5. Bring down the server and then bring it back up.
6. Type 'Modules' at the file server to verify that all the required files were loaded on the file server.

The following files are contained in LANDR3.EXE:

- STATS DOC 63446 10-06-93 3:55p
- TOKENTSM NLM 9040 09-30-93 3:30p
- MSM NLM 15628 10-04-93 1:03p
- FDDITSM NLM 7847 07-07-93 5:07p
- MSM31X NLM 16483 10-04-93 1:04p
- PATCHMAN NLM 9632 02-04-93 10:38a
- NE2 LAN 4954 10-08-93 10:44a
- NE2_32 LAN 5066 05-12-93 4:03p
- NE2100 LAN 7224 09-24-93 4:25p
- TOKEN LAN 10125 06-07-93 1:29p
- NE3200 LAN 13811 10-08-93 10:51a
- LANDR3 TXT 26051 10-27-93 2:12p
- RXNETTSM NLM 6202 01-06-93 10:04a
- PCN2LTSM NLM 5691 01-30-93 11:32a
- NE1000 LAN 4468 01-20-93 3:18p
- !NVL1301 CFG 1169 03-12-92 2:28p
- !NVL1401 CFG 986 06-10-92 4:02p
- !NVL1501 CFG 11994 01-11-93 3:24p
- !NVL0901 CFG 8293 10-04-90 10:42a
- FIRMLOAD COM 1628 01-04-91 8:57a
- @7154 ADF 2657 04-27-92 1:54p
- XLOAD EXE 13872 08-06-91 4:47p

- XLOAD DOC 3472 07-06-92 11:00a
 - LDR001 PTF 52920 11-06-91 4:55p
 - LDR001 DOC 3200 07-06-92 11:00a
 - NE2000 LAN 7356 10-08-93 10:47a
 - NE1500T LAN 7226 09-24-93 4:25p
 - TOKENDMA LAN 10861 05-26-93 3:16p
 - ETHERTSM NLM 8841 09-28-93 2:41p
 - NTR2000 LAN 10272 09-13-93 2:23p
 - PM311IO NLM 8384 04-13-93 11:28a
 - LSLENH3 NLM 10500 06-02-93 11:34a
 - IOSHIM NLM 1649 06-09-93 9:50a
 - TRXNET LAN 3075 01-07-93 1:23p
 - PCN2L LAN 4726 01-29-93 8:45p
 - LSLENH NLM 11641 11-16-92 8:29a
 - MONITOR NLM 117775 10-26-92 9:21a
 - !NVL1201 CFG 7378 03-26-92 9:08a
 - NE32HUB LAN 12266 01-27-93 9:11a
 - @7151 ADF 2346 07-26-89 5:08p
 - !NVL0701 CFG 2745 09-02-92 1:25p
- 41 file(s)

Novell NetWare 3.12 File Server Requirements

The only new file required for NetWare 3.12 is CLIB.NLM version 3.12g or later.

Use the following procedure to update the file server.

1. Copy CLIB.NLM version 3.12g into the SYS:SYSTEM directory.
2. Unload the previously loaded CLIB and load the new CLIB, or bring down the file server, then bring it back up.
3. Type 'Modules' at the file server console to verify that the new version of CLIB.NLM was loaded on the server.

Novell NetWare Driver Requirements

The following file versions are recommended for SiteMeter's installation and use:

- IPX version 3.10 or later
- NETX version 3.26 or later
- VIPX version 1.13 or later
- NETWARE.DRV version 2.02 or later
- VNETWARE.386 version 1.06 or later

If you are using ODI drivers instead of IPX, you must have the following:

- LSL version 1.2 (version 2.01 recommended)
- IPXODI.COM version 1.2 (version 2.1 recommended)

The latest versions of these files can be found on CompuServe in the Novell Libraries (GO NOVLIB). As of this writing, the current IPX, NETX, and IPXODI are contained within the self-extracting file named DOSUP9.EXE.

The current versions of the Novell support drivers for Windows (VIPX.386, VNETWARE.386, NETWARE.DRV, etc.) can be found in the self-extracting file WINUP9.EXE located in the Novell Libraries (GO NOVLIB).

Note: As these drivers are updated and added to CompuServe, the number within the CompuServe filename will increment. For example, if Novell were to release a newer IPX and add it to DOSUP9.EXE, the name would change to DOSUP10.EXE.

On the Internet, these files are located at the FTP.MCAFEE.COM site in the /pub/patches directory. On American Online, use the keyword "Novell" to locate these files.

Determining Version Numbers

You can determine the versions of the above software by using the following methods:

- For IPX and the NETX shell versions, use the Novell NVER command.
- For Windows version and mode, run Windows and choose the Help | About Program Manager.
- For both Novell Windows support drivers and IPXODI.COM file versions, use the Novell VERSION command. For example, type:

```

VERSION VNETWARE.386 <ENTER>
OR
VERSION IPXODI.COM <ENTER>

```

How This Manual Is Organized

CHAPTER	DESCRIPTION
Chapter 1: Introduction	Product description and system requirements.
Chapter 2: Installation	Instructions for installing SiteMeter.
Chapter 3: Getting Started	Console description and tutorial to register an application for metering and to configure enterprise metering across multiple file servers.
Chapter 4: Setting Up Metered Applications	Instructions for setting up metering for your network applications across your enterprise.
Chapter 5: Enterprise Metering	Instructions for configuring your network to conduct metering across all your file servers.
Chapter 6: Enterprise Monitoring	Instructions for tracking both application usage across your network file servers and software usage activity by your network users.
Chapter 7: Enterprise Reporting	Instructions for generating reports with detailed information about software usage on your network.
Appendix A: SYSMOD	Instructions for using this SiteMeter utility to make changes to files across your network.
Appendix B: Troubleshooting	List of SiteMeter's error messages, explanations and solutions.
Appendix C: Using Brequest	Use and configuration information and a list of return codes for the server-based Btrieve record manager.

Chapter 2 *Installation*

This chapter provides the installation procedures for SiteMeter.

Note: If you purchased SiteMeter with McAfee's BrightWorks package 2.01 or later, refer to Chapter 2, "Installation" of your *Getting Started: BrightWorks* guide or your *Using BrightWorks* manual.

Before Installation

To install SiteMeter, you must:

- Log in to the network as a SUPERVISOR or equivalent.
- Run Windows 3.1 or later (Enhanced mode) or Windows for Workgroups 3.11 or later.
- Have the following line in the [386Enh] section of your SYSTEM.INI file:

```
network=*vnetbios, vnetware.386, vipx.386
```
- Have a drive mapped to your SYS volume.
- Have about 2.1 MB of temporary space on the local drive of the installation PC.

If you are installing from diskettes, use the DOS DISKCOPY command to make a working copy of the SiteMeter distribution diskettes.

SiteMeter Installation

Installing SiteMeter is quick and simple, requiring minimal user input.

Use the following procedure to install SiteMeter on your network. You can exit the installation at any time by choosing Exit in the lower right corner of the installation screen.

During installation, SiteMeter modifies your existing WIN.INI file and backs up the old file as WIN.MCF. This change does not affect your Windows performance.

Refer to Appendix C for information about installing and configuring BREQUEST.EXE and the Btrieve NLM. (The NLM and BREQUEST.EXE are required both to run the SiteMeter console and to perform the upgrade install.)

Note: If you are currently running a previous version of SiteMeter, the NLMs must be unloaded on the file server. At the file server console, type:

UNLOAD SMRPROXY

and

UNLOAD SITEMETR.

1. Verify that you have a drive letter mapped to the SYS volume for the file server on which you are installing SiteMeter.
2. Start Windows or Windows for Workgroups.
3. Place the first distribution diskette in your floppy drive if you are installing from diskettes.

If you are installing from a Compact Disc (CD), place the CD in your CD drive.

If you are installing the BBS release, decompress the zipped files into a directory on your local or network drive.

4. Choose File | Run from your Windows Program Manager.

The Run dialog box is displayed.

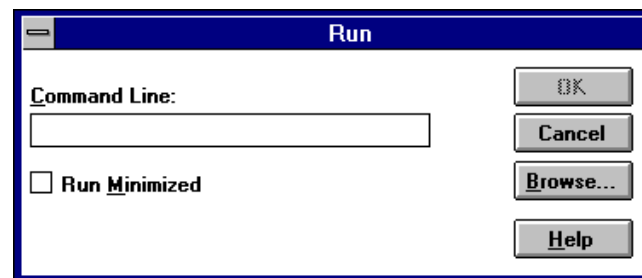


Figure 2-1: Run dialog box

5. At the prompt, enter the drive letter of the floppy, CD, or hard drive where you inserted the distribution diskette, CD, or where you unzipped the program files from the BBS and then type SETUP.

For example, type:

A:\SETUP <ENTER>

or

F:\SITEMETR\SETUP <ENTER>

At this point, a message is displayed informing you that “Setup is initializing.”

Note: A log file is created and placed in your WINDOWS directory. The log file is an ASCII file listing the location of the SiteMeter installation. The log file also lists any errors that occurred during installation. If an error that prevents completion of the installation process occurs, the log file will display automatically.

The Welcome dialog box is displayed.

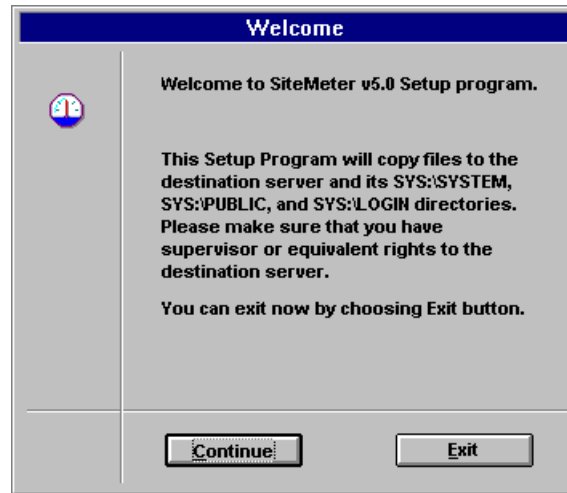


Figure 2-2: Welcome dialog box

6. Choose Continue.

The Installation Configuration dialog box is displayed.

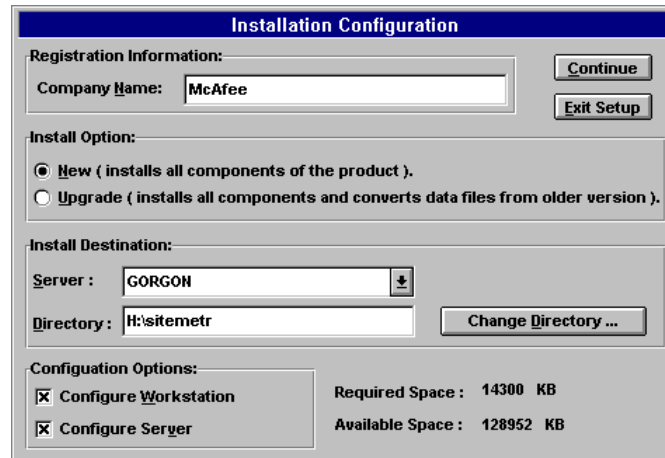


Figure 2-3: Installation Configuration dialog box

Note: The Installation Configuration dialog box displays both the required space needed to run the SiteMeter install and the available space on the current server. If there is insufficient space, you will have to choose a new destination (i.e., volume or file server).

7. Type your company name in the Company Name text box.
8. Select one of the following install options:

Option	Description
New Install	Copies SiteMeter files to the network and automatically creates the Program Manager group McAfee (if not found) containing the SiteMeter program, the Crystal Reports program and all associated Readme file icons.
Upgrade	In addition to New Install features, it allows you to automatically upgrade from either previous versions of SiteMeter or SiteLock with minimal user input.

9. Select a server from the server drop-down list box.

The drop-down list box displays all the file servers to which you are currently attached and have a drive mapped. SiteMeter verifies that you have SUPERVISOR rights on the selected file server.

10. Confirm the Directory in the Directory text box.

The drive letter and full directory must coincide with the file server you selected earlier. SiteMeter creates the directory if it does not exist. The default drive letter is the first one found on the server you specified. SITEMETR is the default directory.

11. If you want to change the directory, choose Change Directory.

The Change Directory dialog box is displayed.

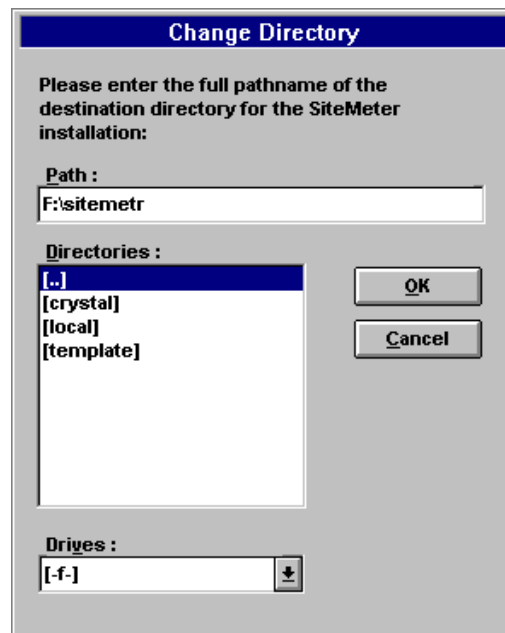


Figure 2-4: Change Directory dialog box

Select the desired directory and path and choose OK to return to the Installation Configuration dialog box.

12. If desired, deselect the Configuration Options.

By default, the install procedure configures both your workstation and server. Simply select the checkbox to disable these settings.

13. Choose Continue to proceed with the installation.

A dialog box is displayed with a percent completed bar.

14. If you selected the Upgrade option, refer to the next section for additional instructions.

If prompted, insert the remaining disks to complete the installation.

The Setup Information dialog box is displayed.

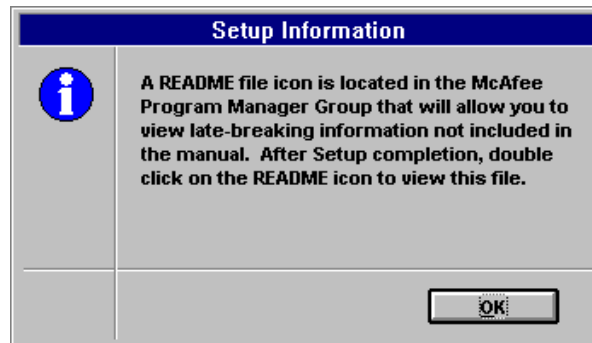


Figure 2-5: Setup Information dialog box

15. Choose OK to indicate that the installation is complete. View the Readme file for any updated product information.

The installation is complete. Refer to Chapter 3, “Getting Started” for a description of SiteMeter’s console and tutorials introducing SiteMeter’s metering capabilities.

Upgrade Install

The Upgrade option installs into a new SiteMeter directory and imports data from an old version of metering software. The term “migration” refers to the process of upgrading previous metering software with this version of SiteMeter.

Continue with the following steps to complete the Upgrade Install procedure:

14. If prompted, insert the remaining disks to complete the installation.

The Confirm Migration dialog box is displayed and contains the following information:

Option	Description
Metering data directory	Displays the directory path where metering files are located.
File server to be migrated	Displays the file server that you entered in the Installation Configuration dialog box.
Disk space required	Displays the estimated amount of disk space needed to achieve a successful migration.
Disk space available	Displays the amount of disk space available on the selected server.



Figure 2-6: Confirm Migration dialog box

16. Choose Begin Migration to transfer the metered applications from previous copies to the selected file server.

The Migration Status dialog box is displayed.

Note: If you do not want to transfer the existing metered applications to the selected file server, choose Abort Migration. Your upgrade will install successfully, however, no metered applications will be transferred from previous copies of McAfee software metering products.

17. View the migration program.

The Success dialog box is displayed.

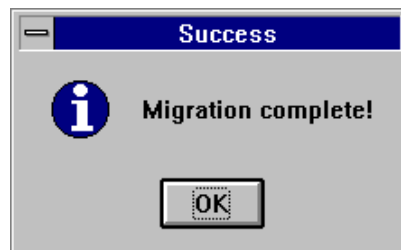


Figure 2-7: Success dialog box

18. Choose OK.

The Setup Information dialog box is displayed.

19. Choose OK.

The installation is complete. Refer to Chapter 3, "Getting Started" for a description of SiteMeter's console and tutorials introducing SiteMeter's metering capabilities.

Configuration Procedures

These instructions review the installation process and provide important information about installing the product NLMs.

Important: BREQUEST.EXE version 6.10 or later must be properly loaded to run the SiteMeter Administration program and USAGE.EXE. For instructions on setting up server-based Btrieve, refer to Appendix C, “Using Brequest.”

NOVDB.INI file must exist in the Windows directory. For server-based Btrieve, the Local=NO line should exist in that file.

If you are using SiteMeter and receive the following error message:

```
SiteMeter: The Novell Brequester has not been loaded.  
SiteMeter databases will not be optimized. To optimize  
performance of this program, load the Btrieve.NLM on  
your server, the BREQUEST.EXE TSR on your workstation  
(with argument /d:17000), and restart Windows and  
SiteMeter.
```

and to the best of your knowledge Btrieve has been properly loaded, read the following instructions and take the appropriate steps.

This error occurs if the BTRIEVE.NLM or the BSPXCOM.NLM is not loaded on the file server. Please take the following steps:

1. At the file server console, type BSTOP.

This unloads the NLMs.

2. Type BSTART.

This loads both BTRIEVE.NLM and BSPXCOM.NLM on the file server.

Loading NLMs

Both the SITEMETR.NLM and the SMRPROXY.NLM need to be loaded. To do this, at the file server type:

```
LOAD SITEMETR.NLM  
LOAD SMRPROXY.NLM
```

Note: The SITEMETR.NLM must be loaded before any other NLMs.

You can also do this through the AUTOEXEC.NCF file if you want the SMRPROXY.NLM to be loaded every time the file server system console is brought up.

If you want to perform enterprise metering, you need to:

```
LOAD SMRENT.NLM
```

If you want to perform enterprise metering reporting, you need to:

```
LOAD SMRRPT.NLM
```

Note: All SiteMeter NLMs must be unloaded before the server can be shut down. If an attempt is made to down the server before unloading the NLMs, an error message will display. For further information regarding these messages, refer to Appendix B.

To unload SiteMeter NLMs and stop Btrieve, type:

```
STOPMETR
```

at your file server console before shutting down.

Chapter 3 *Getting Started*

This chapter introduces and discusses the SiteMeter console window. It explains how to attach to and detach from file servers within SiteMeter as well as provides tutorials for setting up and tracking an application for metering and for configuring enterprise metering.

Introduction

The following chart describes the sections in this chapter:

Section	Description
The SiteMeter Console	Provides instructions on launching the SiteMeter console, selecting menu bar items, using the toolbar as an alternative to the menu bar and using SiteMeter's online help.
Attaching to and Detaching from File Servers	Describes how to attach to and detach from file servers while using SiteMeter.
Setting Up and Tracking a Metered Application	Describes how to register an application for metering, monitor its usage, and determine who its current and queued users are.
Configuring Your Network for Enterprise Metering	Describes how to set up two file servers for enterprise metering.

The SiteMeter Console

All of SiteMeter's functions are configured from the SiteMeter console. This section describes navigation through SiteMeter, the console's menu and toolbar, and the procedures for launching and exiting SiteMeter.

Windows Terms

The SiteMeter console should be used with a mouse (refer to the section “Using the Keyboard” later in this chapter for instructions on using SiteMeter without a mouse). The table below briefly defines several Windows terms regarding the use of the mouse and product windows.

Term	Description
Button 1	The selection or primary mouse button (usually the left button, but can be switched using the Control Panel).
Cancel	Choose Cancel to exit the current dialog box without saving any of the changes you made in the dialog box or without executing a command you chose in the dialog box.
Choose	Double-click the mouse button (or use a key combination) on an item to initiate an action. For example, “Choose the SiteMeter icon” should be interpreted as a double-click on the SiteMeter icon.
Click	Press the mouse button once.
Double click	Press the mouse button twice in quick succession.
Icon	A graphic representation of an executable or function.
Point	Position the cursor on the screen to rest on the desired item.
Property Sheet	Windows tab metaphor that locates related information in a single dialog box and allows easy navigation from tab to tab.
Spin Control	Arrows that increase or decrease the value displayed in the accompanying text box.
Scroll	Use the scroll bars and buttons to move through a list of items.
Select	Mark an item by clicking on it or by highlighting it with either key combinations or the mouse. For example, “Select the Include Path option” should be interpreted as click or highlight the Include Path item.

Note: The remainder of this manual assumes that you are familiar with Windows. Refer to your Microsoft Windows manual for information on the fundamental operating conventions of the Windows environment.

Accessing SiteMeter

After successfully installing SiteMeter, a McAfee group with the SiteMeter and Crystal Reports program icons is created on your Windows desktop. Also included are the Readme icon and Crystal Reports Help. SiteMeter is executed from this Program Manager group.

Use the following procedure to launch the SiteMeter console.

1. Load Brequest at the DOS prompt.

Upon installation, SiteMeter is configured to run with Brequest. The BRQ.BAT batch file runs Brequest. For example, from within the SITEMETR program directory, issue the following command:

```
BRQ <ENTER>
```

2. Run Windows and choose the SiteMeter program icon from the McAfee group.

The SiteMeter console is displayed.

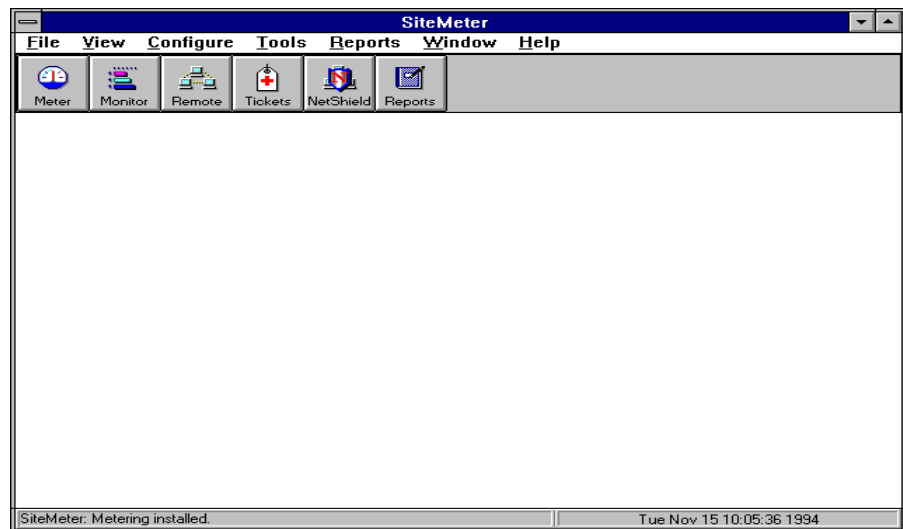


Figure 3-1: SiteMeter's console

The application window consists of the following items, which are discussed in this section:

- SiteMeter Menu Bar
- SiteMeter Toolbar
- SiteMeter Online Help

Exiting SiteMeter

Use the following procedure to end a SiteMeter session.

1. Choose File | Exit.

A dialog box is displayed prompting you to confirm the exit action.

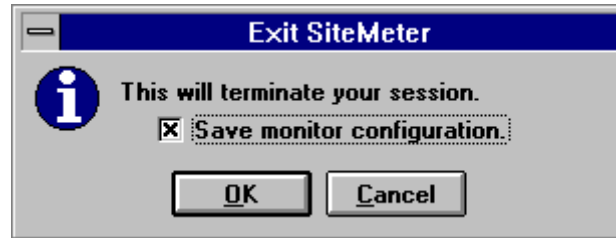


Figure 3-2: SiteMeter's Exit Prompt

2. To save your monitor configuration, select the Save monitor configuration check box.

Selecting this option will save the configuration of any metering windows that are currently open in your SiteMeter application window. All open metering windows will be automatically restored upon starting your next SiteMeter session.

3. Choose OK to close the SiteMeter application.

SiteMeter Menu Bar

The SiteMeter console's menu bar consists of the File, View, Configure, Tools, Reports, Window, and Help menu items. To choose a menu item using your mouse, point to the menu name and click mouse button 1. To choose a menu using keystrokes, press ALT and the underlined letter (e.g., for File, press ALT+F). The menu is displayed.

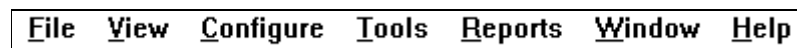


Figure 3-3: SiteMeter Menu Bar

The general purpose of each menu item is defined below:

Menu	Description
File	Commands to export metered data and exit the SiteMeter console.
View	Commands to view the status of SiteMeter's NLMs, refresh the application usage monitor, and hide or show the console status bar.
Configure	Commands to set reporting options, prepare data for reporting, set the refresh timer, define the system server setting and edit the usage scale on the application usage monitor.
Tools	Commands to register applications for metering, view application usage, and launch another McAfee product (e.g., VirusScan, NetShield, LAN Support Center and NetRemote).
Reports	Commands to generate a report and to edit report style sheets.
Window	Options for positioning the open document windows in the SiteMeter console and indicates which windows are open.
Help	Commands to access SiteMeter's online Windows hypertext help.

Holding down mouse button 1 over a menu command displays a description of the command in SiteMeter's title bar at the top of the application window.

SiteMeter Toolbar

When using SiteMeter with a mouse, SiteMeter's toolbar buttons provide an alternative for accessing the most frequently used SiteMeter functions.



Figure 3-4: SiteMeter Toolbar

Instead of choosing commands from the drop-down menus, you can choose the toolbar buttons to perform the same tasks. For example, to define applications to be metered, you can either choose Tools | Metered Applications or simply choose the Meter toolbar button. Both actions display the Define Metered Applications dialog box.

The function of each toolbar button is described below:

Menu	Description
Meter	Displays the Define Metered Applications dialog box from which you can add, modify and delete metered applications.
Monitor	Displays the View Application Usage dialog box from which you can determine which applications are being used and by whom.
Remote	Provides access to optional McAfee NetRemote software for automated user support.
Tickets	Provides access to optional McAfee LAN Support Center software for help desk automation.
NetShield	Provides access to optional McAfee NetShield software for uninterrupted server-based virus protection. NetShield is a Novell NetWare Loadable Module (NLM).
Reports	Displays the Choose Report dialog box from which you can run reports on metered application activity.

Holding down mouse button 1 over a toolbar button displays a description of the button in SiteMeter's title bar at the top of the application window.

Using the Keyboard

To use SiteMeter without a mouse, perform the standard Windows keyboard actions to navigate through the program.

Each menu item on the SiteMeter menu bar has a keyboard mnemonic. Press the ALT key in combination with the keyboard mnemonic key to choose a menu and cause the menu to drop down. For example, press the ALT+F keys to choose the File menu and display its commands.

Each submenu item also has a keyboard mnemonic. Once the submenu is displayed (i.e., "dropped down"), press the keyboard mnemonic of the command you want to choose. For example, from the File menu, press x to choose the Exit command. You can also use the up/down arrow keys to move the highlight to a desired command and press ENTER to select the command.

For detailed information on using a Windows application with the keyboard, refer to your Microsoft Windows manual.

Note: Some SiteMeter console features require the use of a mouse and cannot be accessed with the keyboard.

SiteMeter's Online Help

SiteMeter's online help provides online assistance with SiteMeter. To get information quickly about a SiteMeter feature or procedure, choose the Help | Index command from the SiteMeter console.

Choosing Help | Index displays an index list of topics. Choose the topic for which you require assistance.

SiteMeter's online help uses the Windows hypertext format, allowing you to jump from one topic to another by simply choosing topic names from a list. Several buttons display across the top of the Help dialog box allowing you to search for topics as well as to view a list of the topics you have visited.

For detailed information on using Windows online help, refer to your Microsoft Windows manual.

Attaching to and Detaching from File Servers

SiteMeter offers flexibility in managing your network applications. Many of the configuration dialog boxes allow you to attach to and detach from file servers in a multi-server environment on your LAN.

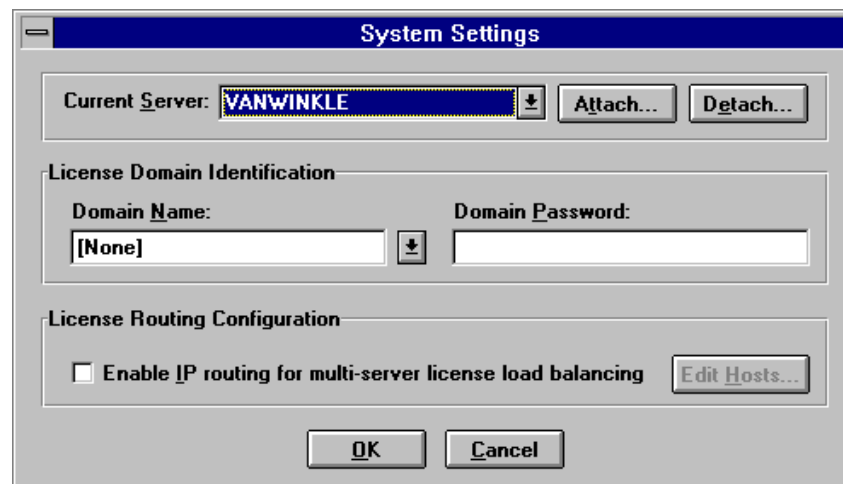


Figure 3-5: Sample dialog box with Attach and Detach Buttons

Using the Attach and Detach buttons, you can change file servers quickly and easily. In doing so, you can control software usage on any file server you want. This tool is particularly useful when you register applications for software metering and when you configure your network for enterprise metering.

The following sections describe the attach and detach procedures. Once you attach to a new server, it becomes the current server for the console until you change servers again. The steps outlined below assume you are at a dialog box with Attach and Detach features; the procedures work for any dialog box with these features.

Attaching to a File Server

Use the following procedure to attach to a file server.

1. Choose Attach.

The Attach to Server dialog box is displayed.



Figure 3-6: Attach to Server dialog box

2. From the drop-down list box, select the file server that you want to attach.
3. Enter your user name and password to attach to that file server.
4. Choose OK to exit this dialog box and attach to the selected server.

Note: When you attach to a server using the Attach button in the Define Metered Application dialog box you cannot browse for files on that server unless you have a drive mapped. The Browse For Files To Meter dialog box includes a Network button that allows you to map a drive from within SiteMeter. This option is explained below.

Detaching from a File Server

Use the following procedure to detach from the current file server.

1. Choose Detach.

The Detach From Server dialog box is displayed.

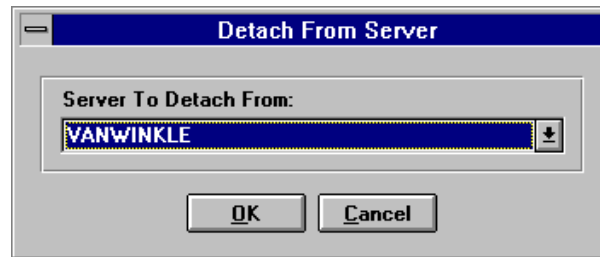


Figure 3-7: Detach From Server dialog box

2. Select the desired file server from the drop-down list box.
3. Choose OK to detach from this file server.

Note: You cannot detach from the file server from which the SiteMeter console was launched.

Mapping to a Network Drive

You can map to a network drive from within SiteMeter. Use the following procedure to map to a network drive from the Browse For Files To Meter dialog box.

1. Choose Network.

The Network - Drive Connections dialog box is displayed.

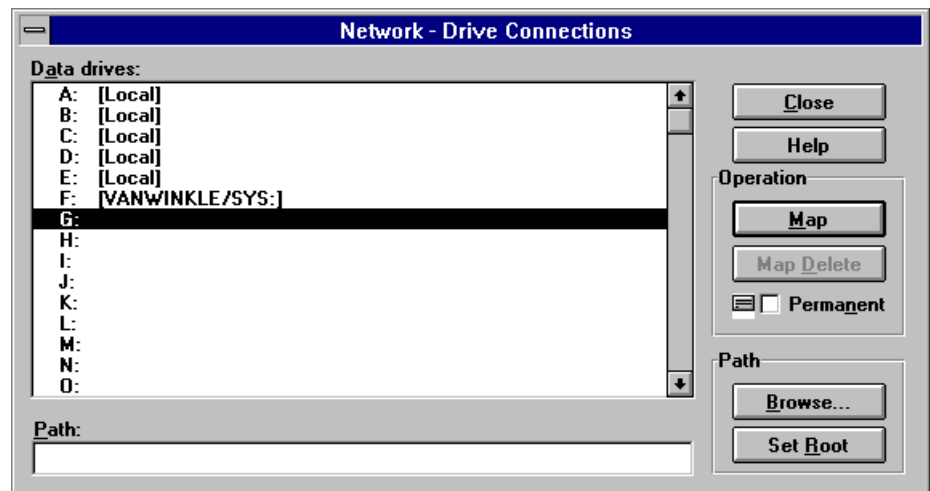


Figure 3-8: Network - Drive Connections dialog box

This dialog box contains the following buttons:

Button	Description
Map	Sets a drive mapping for the drive letter listed in the Path box.
Map Delete	Deletes the drive mapping listed in the Path box.
Permanent	Adds selected drive to your WIN.INI file so that the next time you start Windows the mapping is the same as when you left.
Browse	Allows you to view network servers, volumes and directories. Once you choose Browse, you can select a file server and volume to map as well as attach to and detach from file servers.
Set Root	Allows you to map a drive as a fake root (a subdirectory which functions as a root drive).

- To delete a drive, set a permanent drive, or set a root, select a data drive from the Data drives list box and choose the corresponding button.
- To map a drive, type a path in the Path text box or choose Browse and then choose Map.

If you choose Browse, the Browse Connections dialog box is displayed with a list of all servers/volumes and directories. Select a server/volume and a directory and choose OK.

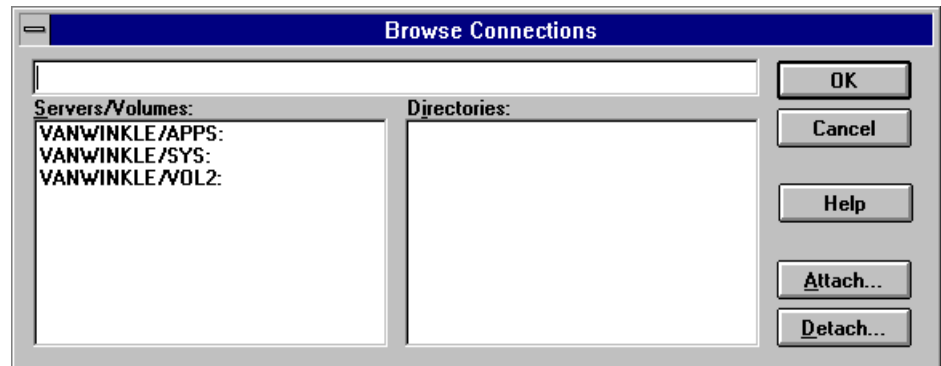


Figure 3-9: Browse Connections dialog box

- Choose Close.

Tutorial: Setting Up and Tracking a Metered Application

This tutorial introduces you to some of SiteMeter's main features. It uses the Windows Calculator utility to demonstrate how to register an application for software metering, view its usage on the application usage monitor and determine who the current and queued users are for that application.

Registering Applications for Software Metering

To control the number of simultaneous users of an application, you must register the application with SiteMeter. This tutorial assumes you have the SiteMeter console displayed on your monitor.

Use the following procedure to register Calculator as a metered application.

1. Choose Tools | Metered Applications.

The Define Metered Applications dialog box is displayed.

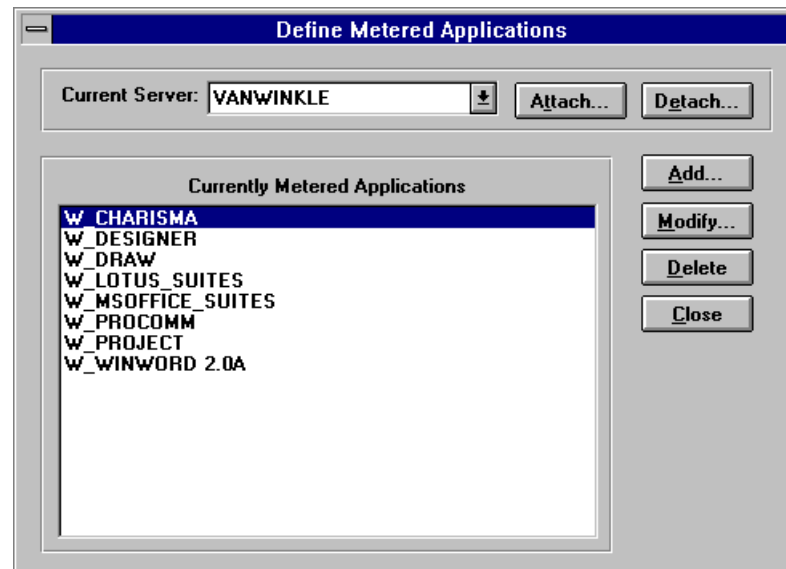


Figure 3-10: Defined Metered Applications dialog box

2. Choose Add to register a metered application.

The New Metered Application dialog box is displayed.

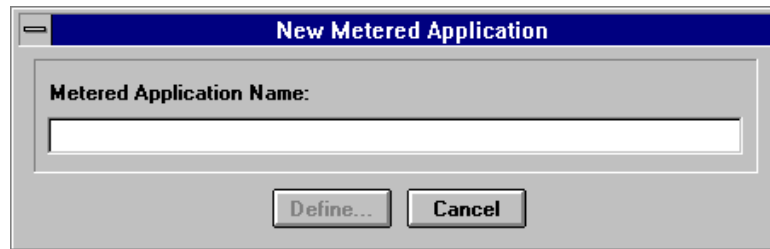


Figure 3-11: New Metered Application dialog box

3. Type “Calculator” in the Metered Application Name text box and choose Define.

The Define Metered Application: Calculator dialog box is displayed.

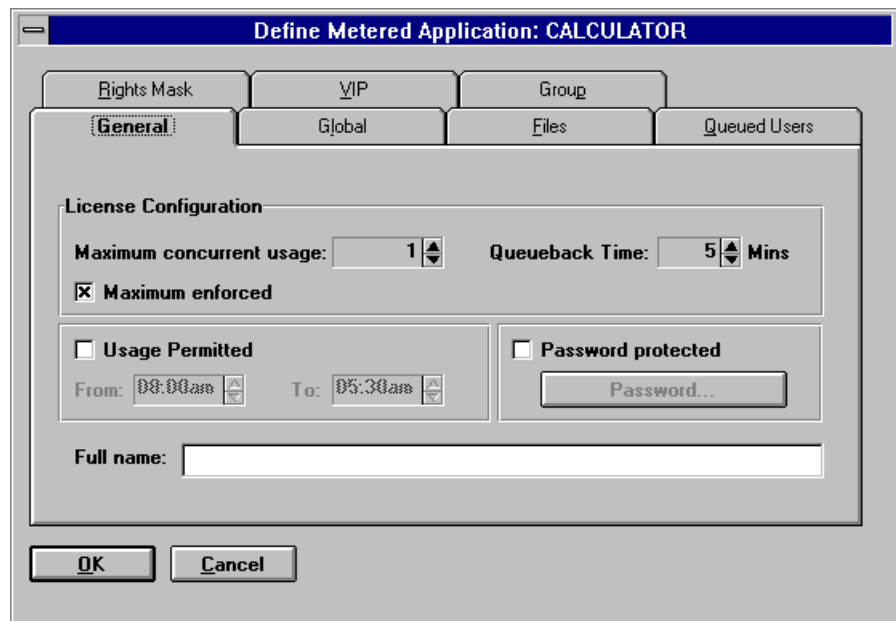


Figure 3-12: General property sheet in the Define Metered Application: Calculator dialog box

4. Select the Files property sheet.

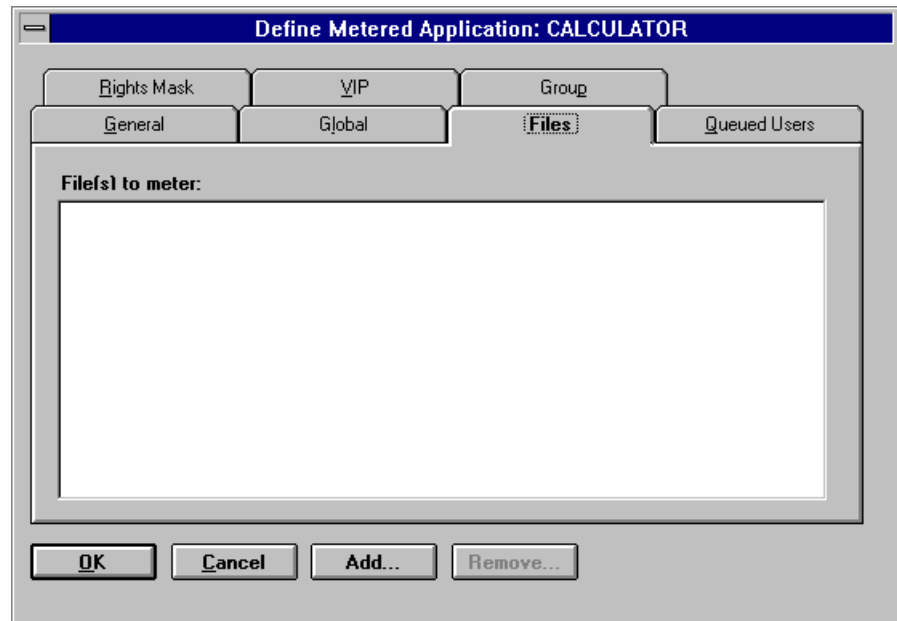


Figure 3-13: Files property sheet in the Define Metered Application: Calculator dialog box

5. Choose Add.

The Browse For Files To Meter dialog box is displayed.

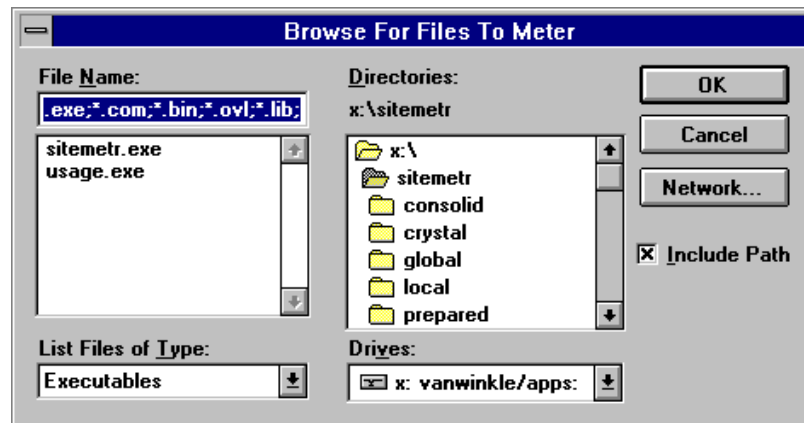


Figure 3-14: Browse for Files to Meter dialog box

This is a standard Windows dialog box for searching for files.

6. Locate your network Windows directory and select CALC.EXE.
7. Select the Include Path option and choose OK.

You are returned to the Files property sheet in the Define Metered Application: Calculator dialog box.

8. Select the General property sheet.
9. Type Calculator in the Full name text box.
10. Use the spin control to set the Maximum current usage to 2.
11. Use the spin control to set the Queueback Time to 10 minutes.
12. Choose OK to return to the Define Metered Applications dialog box.
13. Choose Close to exit this dialog box.

This procedure outlined some of the basic steps necessary to register an application for metering with SiteMeter. In fact, to meter an application, only the application files need to be specified, as in Steps 1 through 6.

SiteMeter offers numerous additional options that you can use to enhance your software metering. Refer to Chapter 4, “Setting Up Metered Applications” for information on password protection, group metering, VIP metering and time-based restriction.

Monitoring Application Usage

Before monitoring or viewing application usage, run Calculator from your Windows shell. (This will ensure that at least one copy of the Calculator application is running.)

Use the following procedure to view Calculator application usage.

1. Choose Tools | Application Usage.

The View Application Usage dialog box is displayed.

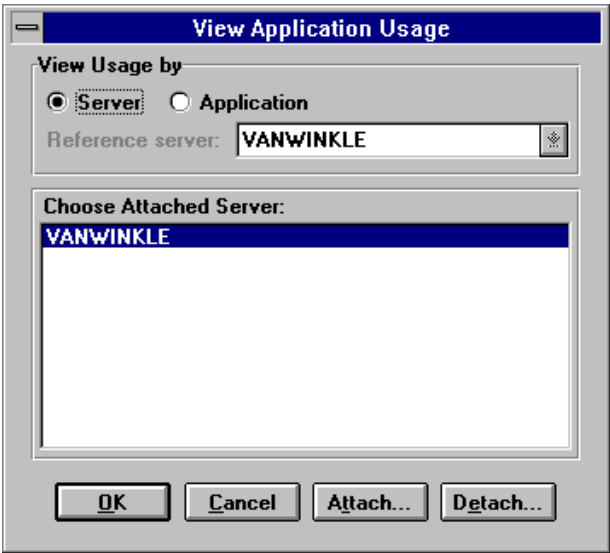


Figure 3-15: View Application Usage dialog box

- 2. Select the desired file server in the Choose Attached Server list box.
- 3. Choose OK.

The Application Usage window for the file server you have selected is displayed.

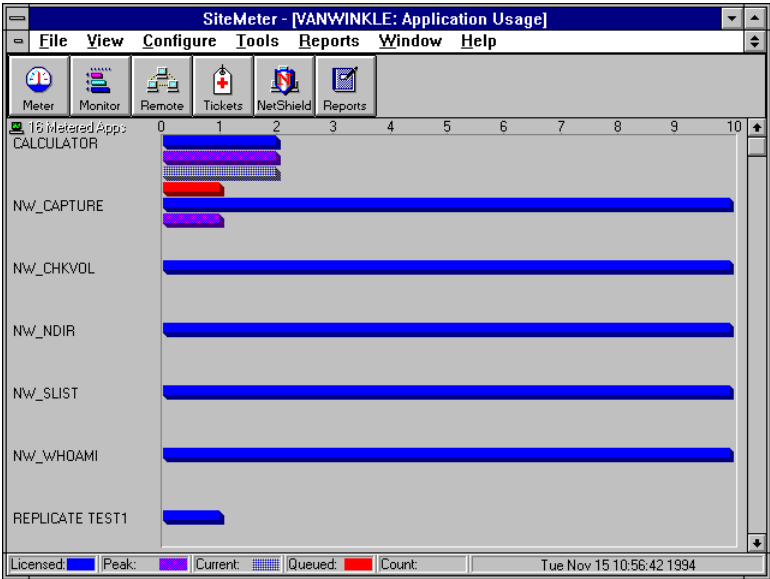


Figure 3-16: Application Usage window

4. Select Calculator from the list along the left-hand side of the window.
When the cursor is in this area, it changes to a magnifying glass.
5. Hold down mouse button 1 to display an infopop window.

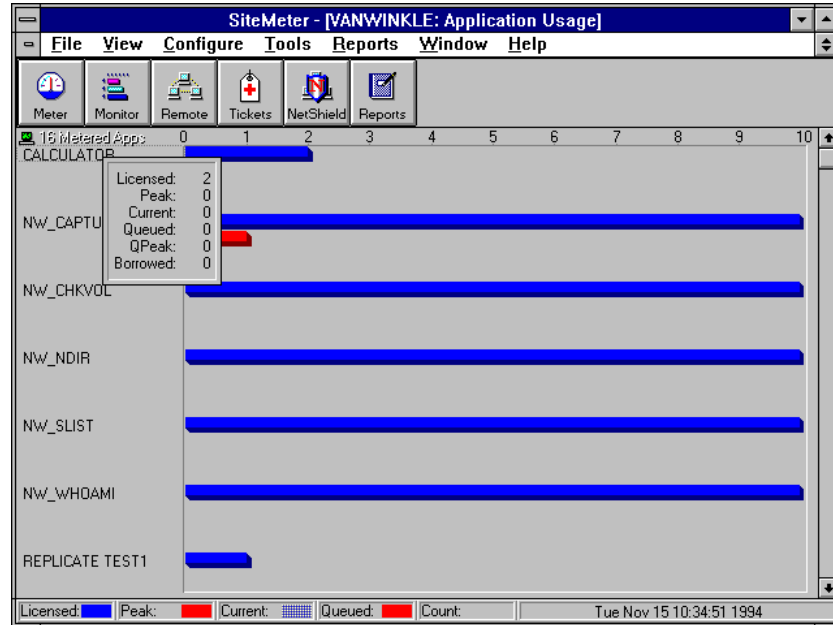


Figure 3-17: InfoPop Window with Number of User Information for Calculator

Viewing Current and Queued Users

Use the following procedure to view the names of the users who are currently using Calculator.

6. From the Application Usage window, position your cursor in the area to the right of Calculator.
A small menu box should be attached to the bottom right of the arrow. If there is no menu box, the cursor is not pointing to a place where information is available. Information is available where the number of users (queued, peak, current and licensed) are displayed on the graph bars.
7. Hold down mouse button 1 to display a menu box.

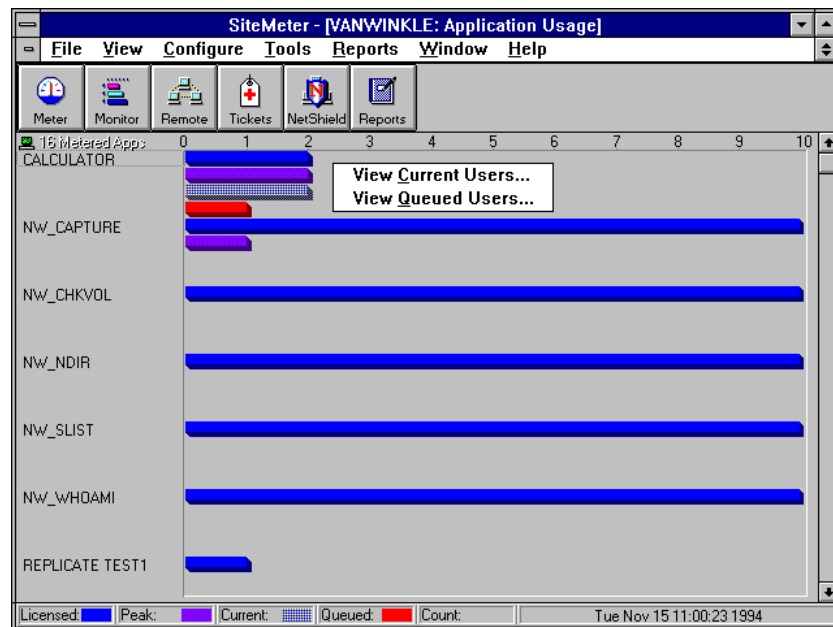


Figure 3-18: View Current/Queued Users menu box

- **View Current Users** - displays the list of current users for the selected application.
- **View Queued Users** - displays list of queued users for the selected application.

8. Choose the View Current Users command.

The Calculator on <file server>: Current Users window is displayed.

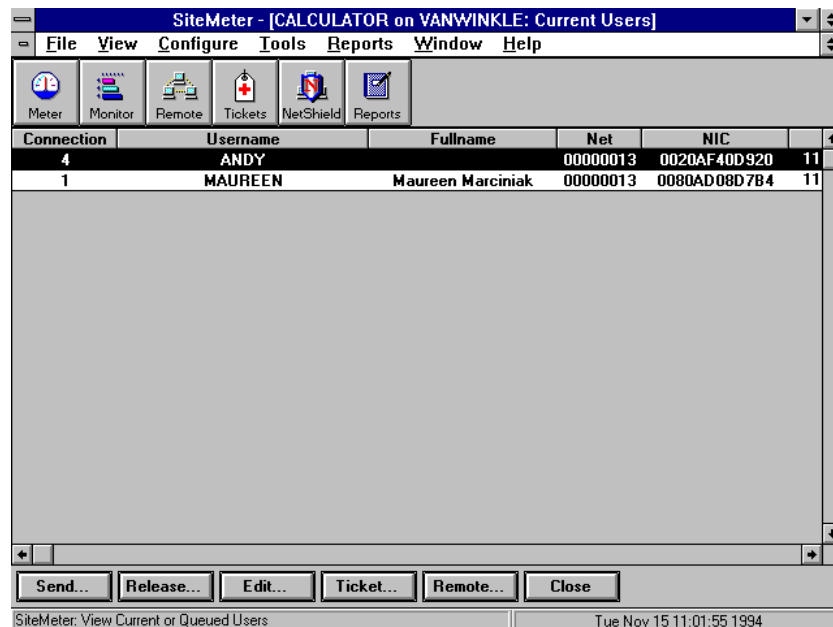


Figure 3-19: Calculator on <file server>: Current Users window

This window lists the users who are currently using Calculator.

9. Choose Close to return to the Application Usage monitor.
10. Press CTRL+F4 to close the Application Usage monitor.

Deleting an Application from Metering

You can remove an application from SiteMeter. This procedure does not remove the application from your network—it merely releases it from being metered by SiteMeter.

Use the following procedure to delete Calculator from SiteMeter.

1. If you are currently running Calculator, exit the application.

An application cannot be removed from metering if a user is currently running the application.

2. Choose Tools | Metered Applications.

The Define Metered Applications dialog box is displayed.

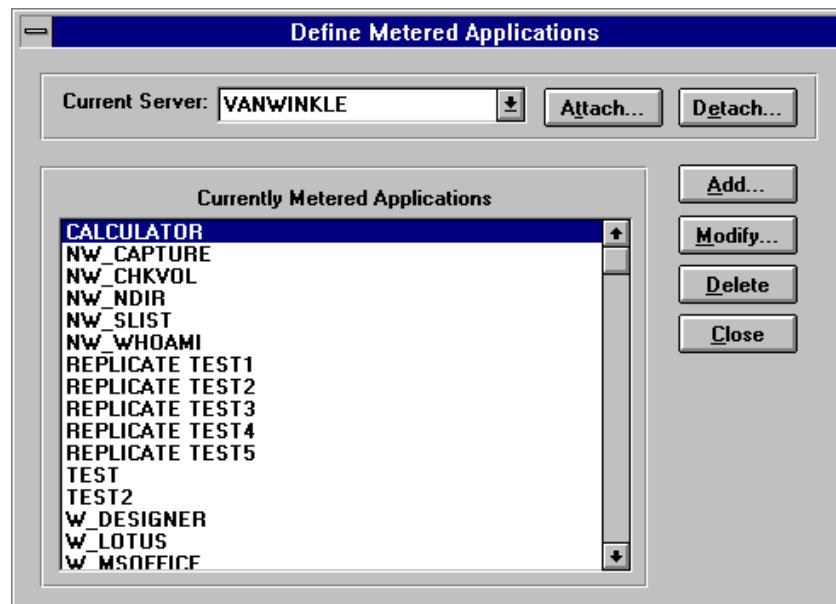


Figure 3-20: Defined Metered Applications dialog box

3. Select Calculator.
4. Choose Delete.

A SiteMeter message box is displayed.



Figure 3-21: Removing a Metered Application message

5. Choose Yes to delete the application.
6. Choose Close to return to the SiteMeter console.

Tutorial: Configuring Your Network for Enterprise Metering

This tutorial walks through setting up enterprise metering on your network. The procedure is for two file servers and two workstations. Refer to Chapter 5, “Enterprise Metering” for detailed information and procedures on enterprise metering.

Note: The following tutorial requires that you have access to two file servers, File Servers A and B; and two workstations, Workstations A and B. In addition, SiteMeter and the SMRENT and SMRPROXY NLMs must be loaded on both file servers.

1. On File Server A, create the metered application Calculator.

Follow the tutorial in the previous section.

If the metered application already exists, a message box indicating this will appear.

2. Choose Tools | Metered Applications.

The Define Metered Applications dialog box is displayed.

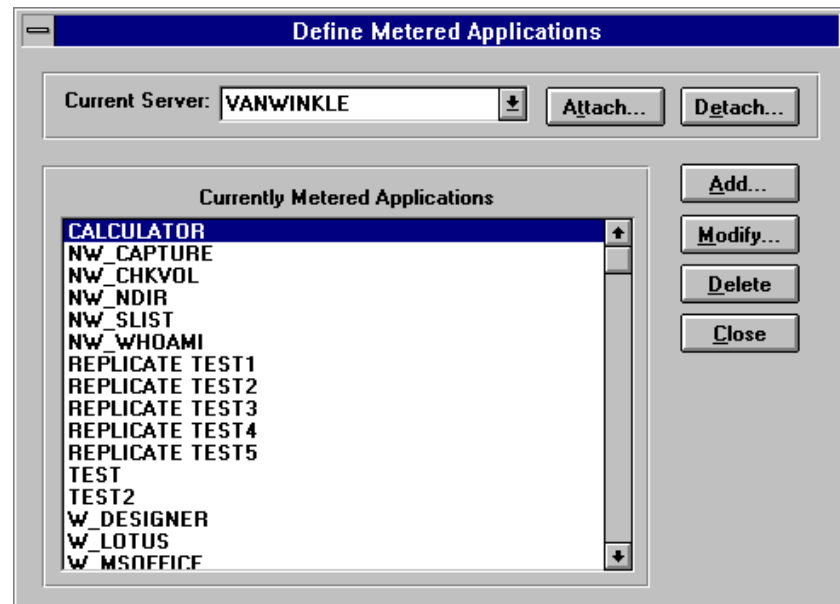


Figure 3-22: Defined Metered Applications dialog box

3. Select Calculator and choose Modify.

The General property sheet in the Define Metered Application: Calculator dialog box is displayed.

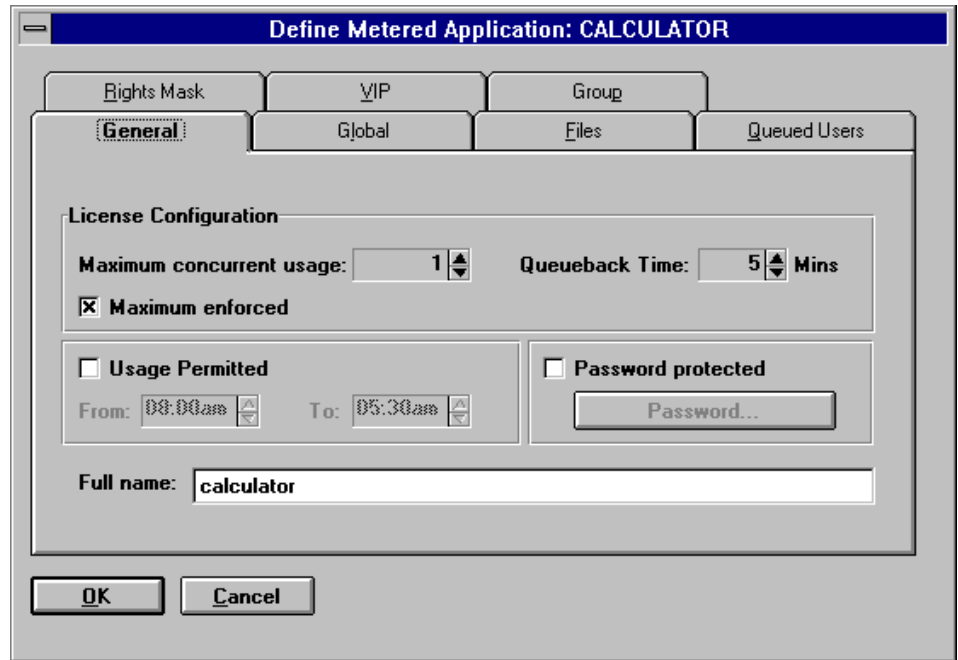


Figure 3-23: General property sheet in the Defined Metered Application: Calculator dialog box

4. Set the Maximum concurrent usage to 5.
5. Select the Global property sheet.

The Global property sheet in the Defined Metered Application: Calculator dialog box is displayed.

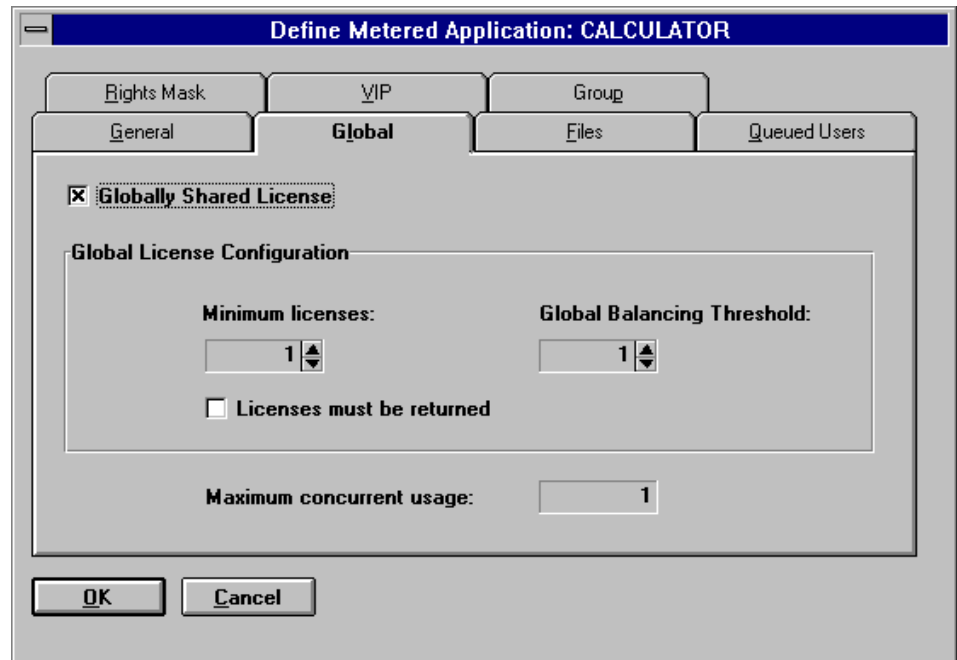


Figure 3-24: Global property sheet in the Defined Metered Application: Calculator dialog box

6. Select the Globally Shared License check box, set the Minimum licenses to 3, set the Global Balancing Threshold to 1, select the Licenses must be returned check box and choose OK.

Note: The minimum license number refers to the minimum amount of licenses retained for the “providing” file server. In this tutorial, there are a total of 5 licenses available for Calculator, but only 2 are available for lending because 3 are required to be retained by the providing file server.

By selecting the Licenses must be returned check box, you are sending a message to SiteMeter to search for a license at the time of being queued. If the check box is not selected, SiteMeter automatically searches to obtain a license.

7. Choose Close to return to the SiteMeter console.
8. Choose Tools | Replicate.

The Replicate Metered Application Configuration dialog box is displayed.

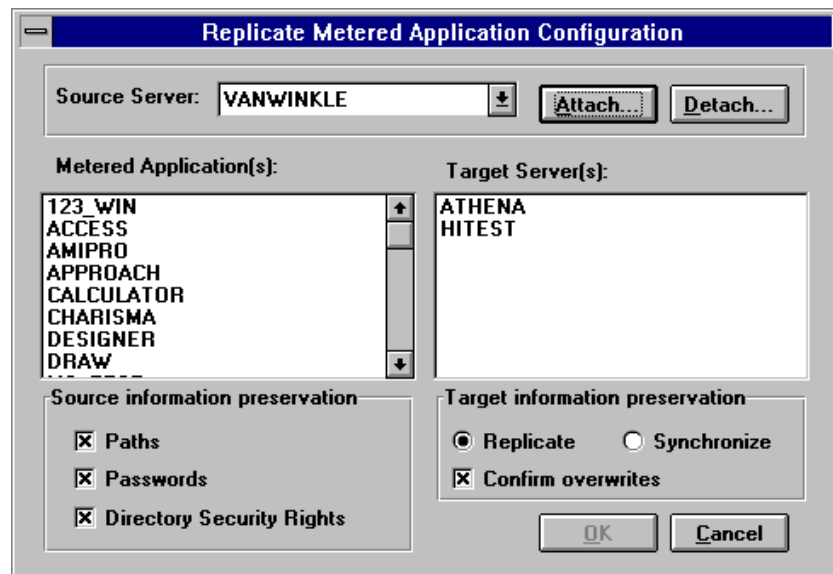


Figure 3-25: Replicate Metered Application Configuration dialog box

9. Attach to the desired File Server (File Server B).
10. Select the metered application Calculator from the Metered Application(s) list box, select the target server (File Server B) from the target server(s) list box, deselect the Paths check box, and then choose OK.

Note: By default, the Paths check box is selected. If you choose to replicate the paths, it is important to confirm that the directory trees for both file servers are parallel.

A SiteMeter message is displayed.

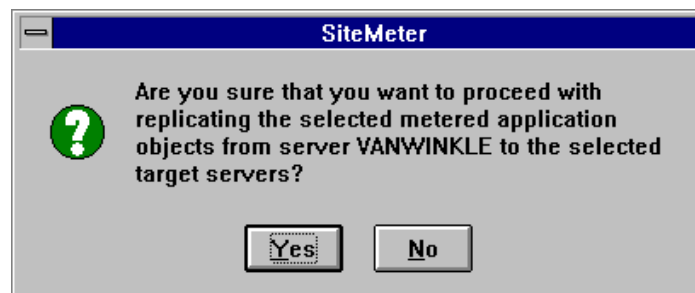


Figure 3-26: Replication message

11. Choose Yes to continue with the replication.

Note: A message may be displayed asking to confirm an overwrite. This message will occur if a duplicate metered application is found on the receiving file server. Choose Yes to overwrite the metered application.

12. Choose Tools | Metered Applications.

The Define Metered Applications dialog box is displayed.

13. Change current server to recipient server (File Server B), select Calculator from the Currently Metered Applications list box, and choose Modify.
14. Change Maximum Concurrent Usage to 0.
15. Select the Global property sheet.

The Global property sheet in the Define Metered Application: Calculator dialog box.

16. Confirm that the Globally Shared License Balancing check box is selected and the Global Balancing Threshold is set to 1.

The Replicate process transferred this information. If you remove this information, you will need to choose OK to continue.

17. Choose Close to return to the SiteMeter console.

18. Choose Tools | Application Usage.

The View Application Usage dialog box is displayed.

19. Select the Application radio button, select Calculator and choose OK .

20. From Workstation B, log in to File Server B and run Calculator.

At this time a Network Broadcast message is displayed. "Calculator unavailable, you have been queued." Shortly thereafter, another Network Broadcast message is displayed. "Calculator available, will be held for 5 minutes."

21. From Workstation B, run Calculator again.
22. From Workstation A, view the new Application Usage graph for Calculator.

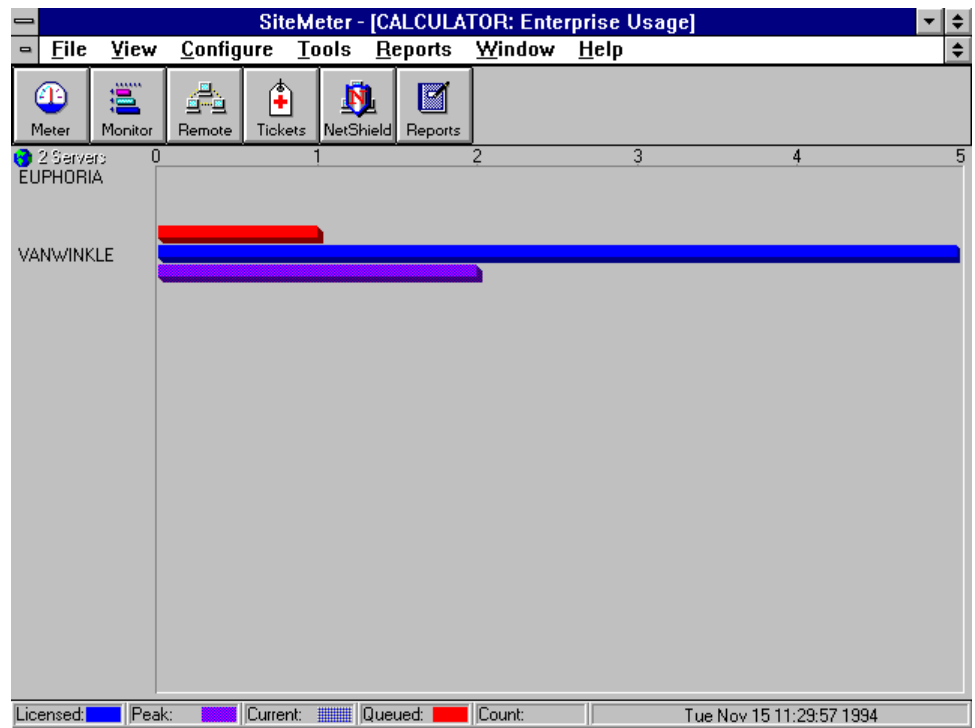


Figure 3-27: Application Usage graph for Calculator

23. From Workstation B, close Calculator.
24. From Workstation A, note the update.

Chapter 4 Setting Up Metered Applications

This chapter provides detailed information about setting up applications to be metered by SiteMeter.

Introduction

Managing network software usage is a crucial task in maximizing LAN productivity. By maintaining control over your network applications, you can ensure legality of your currently installed software and ensure the most efficient use of LAN software. SiteMeter provides this level of software control for your DOS, Windows, OS/2 and Macintosh applications without requiring a workstation agent.

Effective network software management requires controlling the number of simultaneous users of each software application. The maximum number of users differs with each software package and with the number of licenses your company has purchased. SiteMeter helps you keep track of this information, which is useful in determining the need for additional licenses of a particular software application.

For example, suppose that you purchase 5 licenses of a word processing package. The metering reports indicate that all 5 copies are constantly in use with 3 users waiting in the queue for this application. This demonstrates the need to purchase additional licenses for this application.

With software metering you only purchase the number of application licenses you need, reducing unnecessary software expenditures.

How SiteMeter Works

Think of SiteMeter as a public library. You go to the library to check out a copy of a book (i.e., software). The library only has two copies of this book, and they are both checked out. The other libraries in the same system also do not have copies of that book on the shelf.

The library places your name on a waiting list (i.e., queue); you then have the option to check out the book once it becomes available.

When the copy becomes available, the first person on the waiting list is notified. The library holds this book exclusively for this person for a predetermined amount of time (i.e., queueback time).

If after that time the person has not checked out the book, the next person on the list is notified of the book's availability. If no one else is waiting for the book, it is returned to the shelf for anyone's use.

SiteMeter works in much the same way. Users request to run applications through the license server. SiteMeter checks for the application's availability; if it is available, the user is allowed to run the program. If that file server does not have an available copy of the application (and the application is a globally shared license), SiteMeter will check other file servers for an available license.

Once the maximum number of simultaneous users is reached (as set by the network administrator), any further attempts to access the software are prevented. SiteMeter then places all other potential users on a waiting list (queue), unless otherwise specified by the network administrator.

Users who are placed in the queue are notified when a free copy of the application is available. The application is held for the exclusive use of the notified user for a specified number of minutes. If the user does not access the application within this time period, it is offered to the next user in the queue.

The Define Metered Applications Dialog Box

Each application whose usage you want to track and control must be registered with SiteMeter as a metered application. All of the metering setup functions (except for Replicate) are executed from the Define Metered Applications dialog box.

The Define Metered Applications dialog box displays all applications currently registered to be metered on the current server. (If you have not registered any applications for metering, the list will be empty.) You can select a server from the drop-down list box to change the current server.

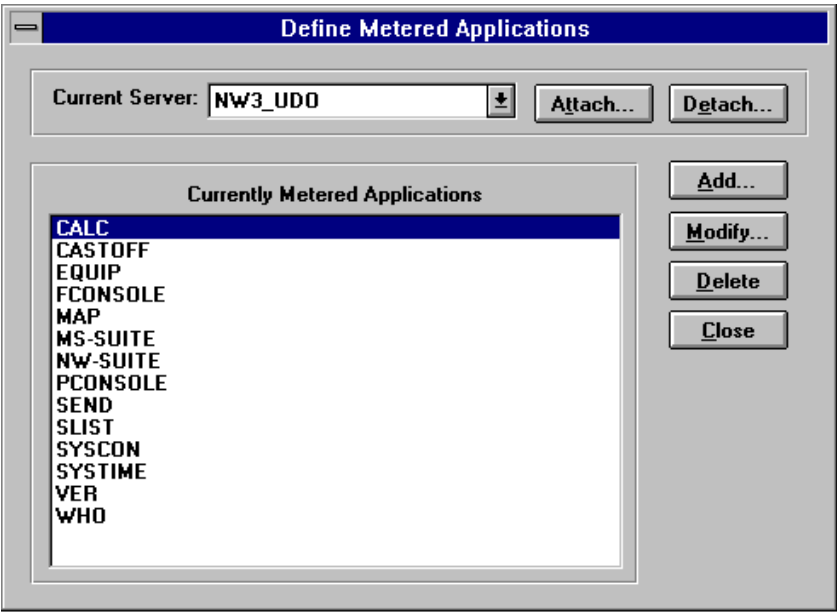


Figure 4-1: Define Metered Applications dialog box

This dialog box also offers the following options:

Option	Description
Add	Allows you to register an application for metering.
Modify	Allows you to change the information already specified for a metered application.
Delete	Allows you to remove an application from metering.
Attach /Detach	Allows you to attach to or detach from different file servers while in SiteMeter. Refer to Chapter 3, “Getting Started” for further instructions.

When Add or Modify is chosen from this dialog box, the Define Metered Application dialog box is displayed. This dialog box uses the Windows property sheet (tab) metaphor, putting all the information relating to your metered application in one convenient place. With this design, you can move quickly and easily between property sheets to perform certain metering definition functions. Each of the property sheets and its options are discussed below.

Files Property Sheet

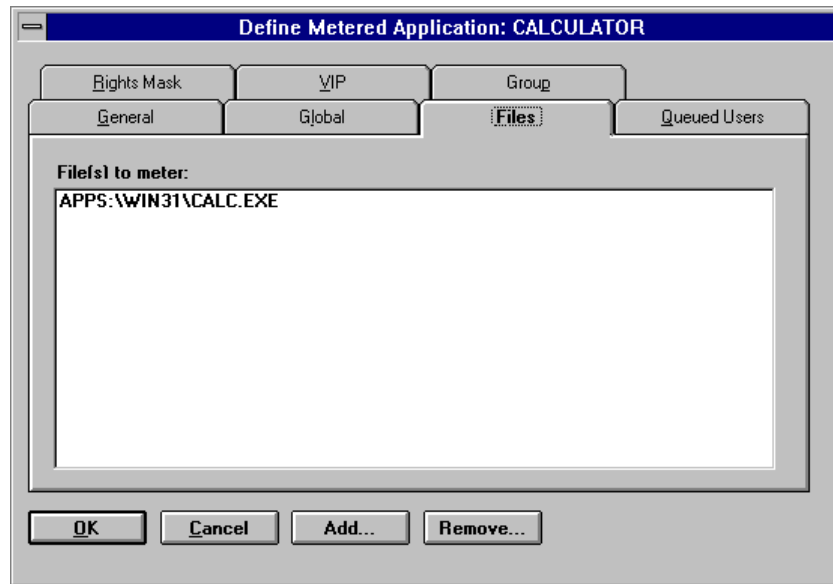


Figure 4-2: Files property sheet

The Files property sheet lists all the files that are controlled as part of a single metered application. If you are creating a new application, the File(s) to meter list box will be empty.

The following options are available in the Files property sheet:

Option	Description
Add	Produces the standard Windows Browse For Files To Meter dialog box from which you can select those application files (with .EXE, .COM, .BIN, .OVL, .LIB, and.DLL extensions) that you want to meter.
Remove	Removes from metering the selected file in the File(s) to meter list box.

With its ability to meter more than one file under a single metered application name, SiteMeter allows you to meter suites of applications. For example, if you want to meter Microsoft Office as a single metered application and thereby remain in compliance with your licensing agreement for that package, you can include the executables for Microsoft Word, Excel and PowerPoint under a single metered application (e.g., Microsoft Office).

The Remove option also allows you to exclude single or multiple files in a suite from being metered. In the above example, you can choose to meter Word and Excel files under the metered application Microsoft Office, but not PowerPoint.

General Property Sheet

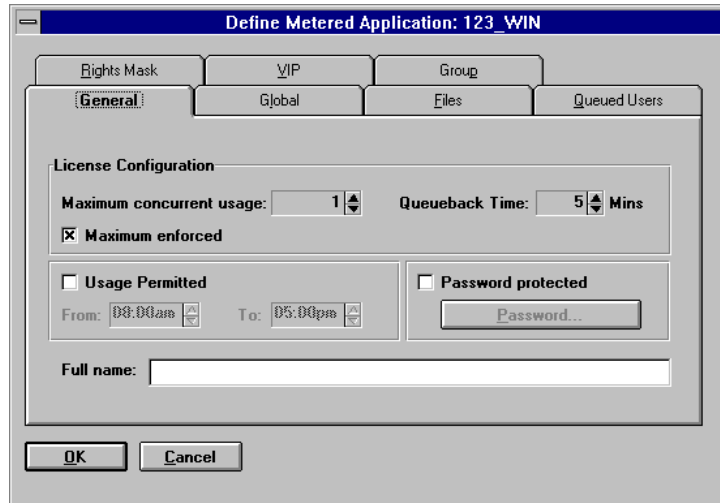


Figure 4-3: General property sheet

The General property sheet contains most of the information that you should specify to register a metered application.

The following options are available in the General property sheet:

Option	Description
Maximum concurrent usage	Sets the maximum number of concurrent users.
Maximum enforced	Enforces the specified maximum number of concurrent users.
Queueback Time	Sets the length of time in minutes an application is held for a queued user.
Usage Permitted (From/To)	Sets the time range during which usage is permitted.
Password protected	Enforces the password for additional administrative security.
Password	Sets the password.
Full name	Defines the full name of the application being metered.

Some of these features are optional and are discussed later in this chapter. For further information regarding the Files or General property sheets and their related options, refer to the section “Registering an Application for Software Metering” later in this chapter.

Rights Masks Property Sheet

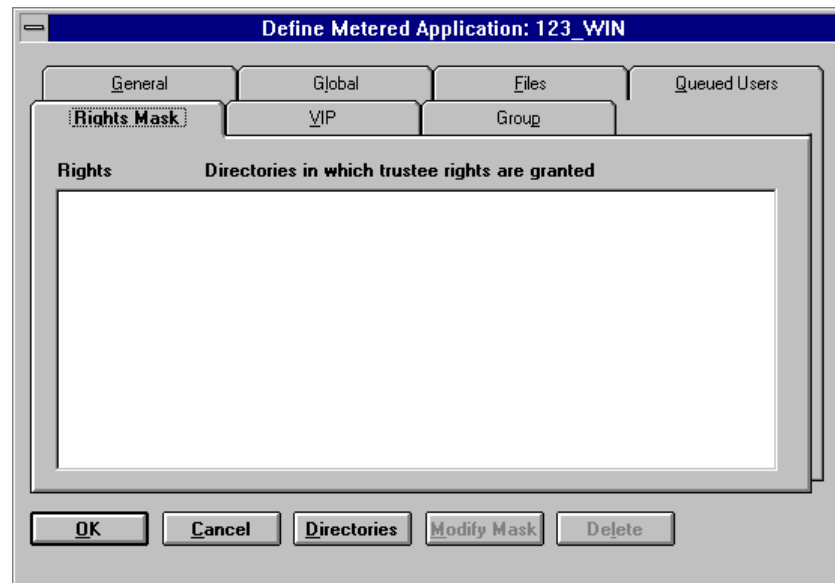


Figure 4-4: Rights Masks property sheet

The Rights Masks property sheet allows you to grant temporary rights or trustee assignments to users while an application is running. The property sheet indicates which rights are assigned to users in which directories. The Directories option produces the Select a Drive/Directory dialog box where you assign the rights. For more information about the Rights Masks property sheet, refer to the section “Assigning Trustee Rights” later in this chapter.

Global Property Sheet

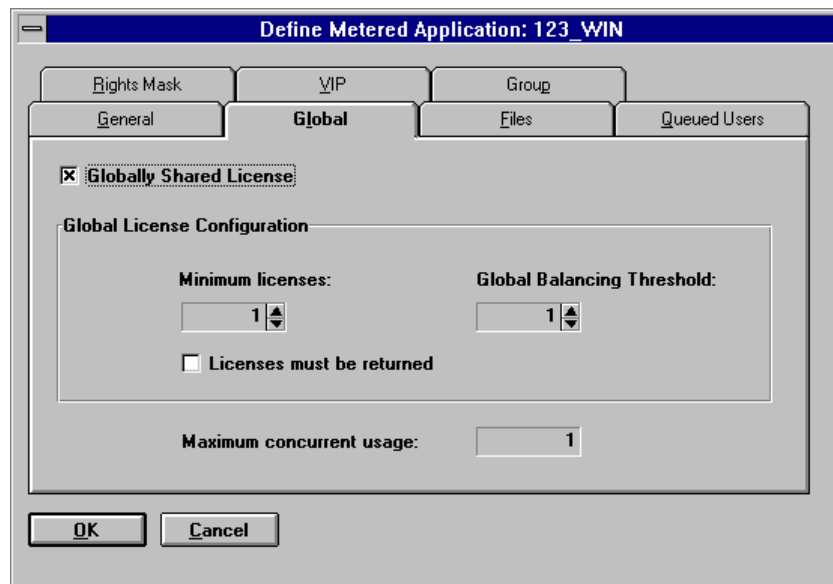


Figure 4-5: Global property sheet

The Global property sheet, allows you to configure an application for enterprise metering (i.e., load balancing or license borrowing) while maintaining a minimum number of licenses on the original file server. For further information regarding the Global property sheet or enterprise metering in general, refer to Chapter 5, “Enterprise Metering.”

Group Property Sheet

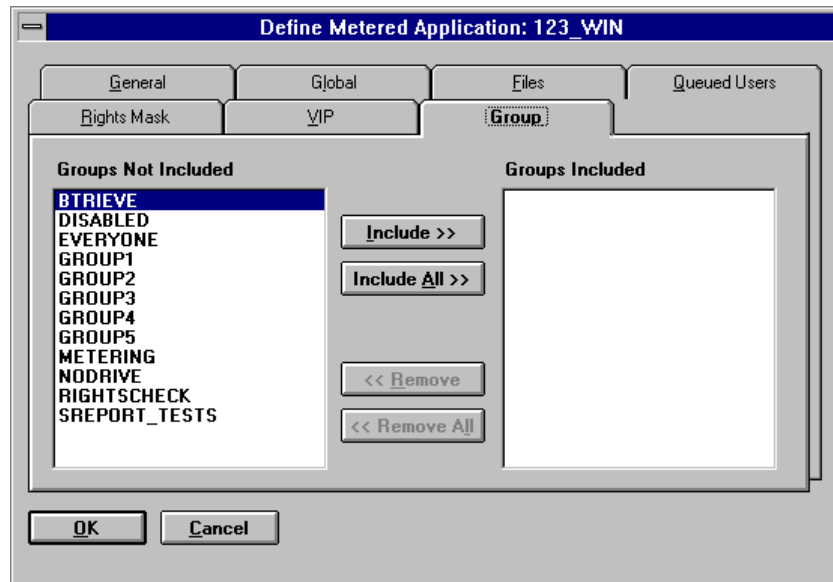


Figure 4-6: Group property sheet

The Group property sheet allows you to tailor application metering to user login groups on a NetWare server. You can restrict access to a metered application to only users who are members of specified groups; in doing so, any user not a member of the specified group may not access this application. For further information regarding the Group property sheet and its related options refer to the section, “Specifying Groups” later in this chapter.

VIP Property Sheet

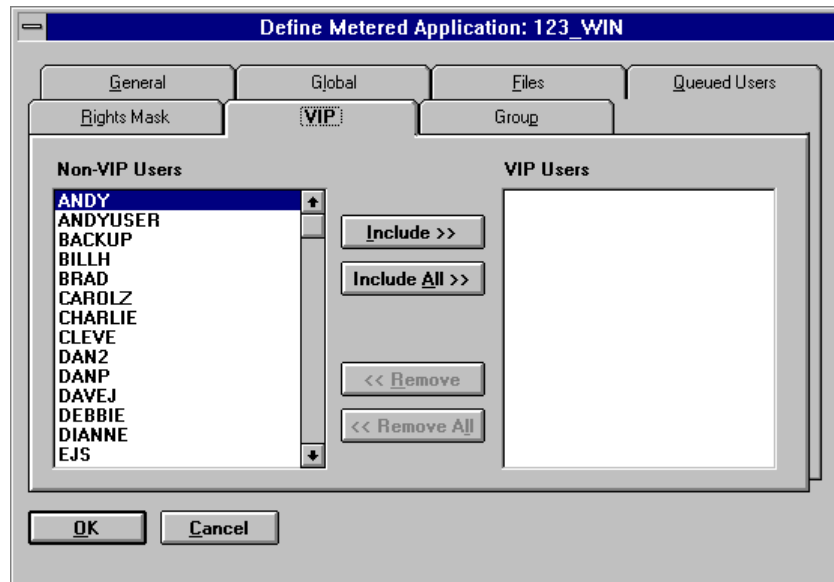


Figure 4-7: VIP property sheet

The VIP property sheet allows you to specify by user name those who are permitted to access an application regardless of the currently available set of licenses. For example, if all licenses for a given application are in use, a member of the VIP list is still able to access the application. All other users are either blocked or queued. For further information regarding the VIP property sheet or its related options refer to the section “Specifying VIP Users” later in this chapter.

Queued Users Property Sheet

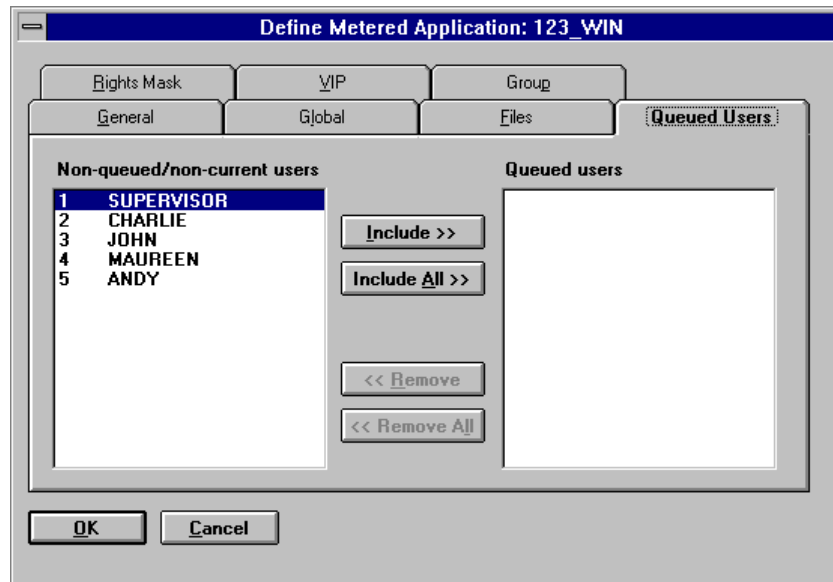


Figure 4-8: Queued Users property sheet

The Queued Users property sheet offers you added control in administering the software usage on your network by allowing you to include and remove users in the queue for a particular metered application. For further information regarding the Queued Users property sheet or its related features, refer to the section “Editing the Queued User List” later in this chapter.

Registering an Application for Metering

This section describes how to set up an application for metering with SiteMeter. Once an application is registered, you can track its usage across your network. The steps described here should be followed for each application you want to meter. This procedure addresses only the basic steps—additional options for registering applications are provided in later in this chapter. If you want to set up enterprise metering on your network, you should register the individual applications for metering using the following procedures, then refer to Chapter 5, “Enterprise Metering” for detailed information about configuring metering on multiple file servers.

What is a Metered Application?

A metered application is a software application or suite of applications that has been registered with SiteMeter for software metering. When registering a file (or files for suite metering), you need to gather the following information for each application:

Item	Description	Example
File(s) to Meter	The list of files to be registered. You can also meter suites of applications to ensure accurate license compliance. All the appropriate executables for each application in a suite would appear in this list.	Single file: WP.EXE Suite of files: Microsoft Office
Metered Application Name	The name of the application(s) to be registered.	WORDPERFECT
Full Name	The entire name of the product or application. This field is ideal for entering descriptive information to help you identify the metered application.	WordPerfect Version 5.1 for DOS
Maximum Number of Concurrent Users	Indicates the total number of licenses purchased for this application.	10 licenses
Password	An administrative option that restricts access to the metering configuration for a metered application. You must supply this password before configuring this metered application (or suite) again.	WP51PASS
Queueback Time	The length of time that the application (or suite) is held exclusively for a user waiting in the queue.	Can be up to 30 minutes
Directories in which Trustee Rights are Granted During Execution	An option that allows you to grant temporary rights (trustee assignments) while an application (or suite) is running.	F:\WP51

Registering Applications for Software Metering

To control the number of simultaneous users of an application, you must register the application with SiteMeter. When registering a product, you need the information described above. Once an application is registered, SiteMeter ensures that only the number of concurrent users that you specify may use that application simultaneously.

Use the following procedure to register an application for metering.

1. Choose Tools | Metered Applications.

The Define Metered Applications dialog box is displayed.

2. Choose Add to register a metered application.

The New Metered Application dialog box is displayed.

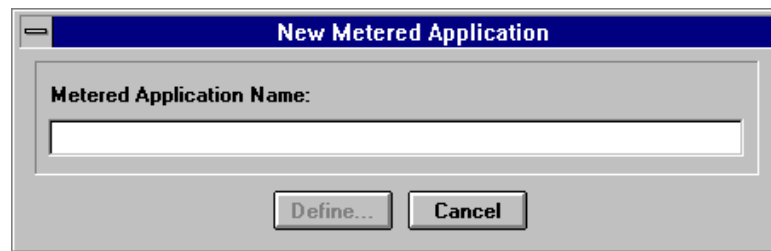


Figure 4-9: New Metered Application dialog box

3. Type the name of the metered application in the Metered Application Name text box and choose Define.

The Define Metered Application dialog box is displayed. The name of the metered application appears in the title bar of this dialog box. Refer to the previous section in this chapter for a detailed description of this dialog box.

4. Select the Files property sheet.
5. Choose Add.

The Browse For Files To Meter dialog box is displayed.

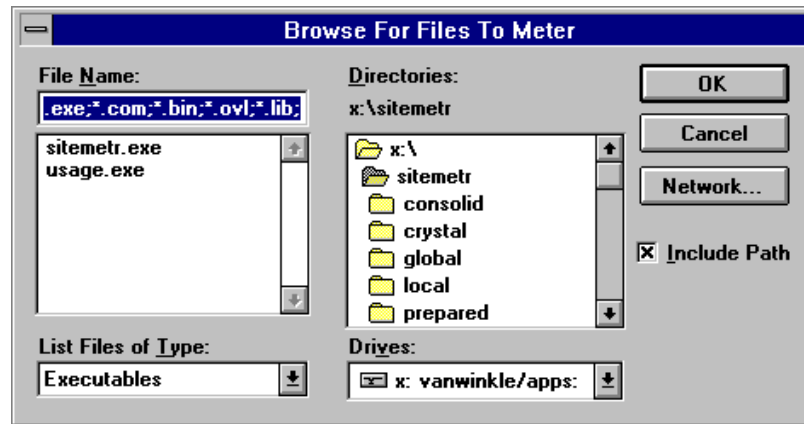


Figure 4-10: Browse For Files To Meter dialog box

This is a standard Windows dialog box that is used to search for files. Refer to Chapter 3, “Getting Started” for instructions on mapping to a network drive with the Network button.

6. Select the appropriate filename(s) (and directory if desired) from the list and choose OK to insert the filename(s) in the Files property sheet’s text box. You can select multiple files for suite metering.

To include the file’s entire path, select the Include Path option. The entire path and file name will be inserted in the File(s) to Meter text box.

Note: If no path is specified, metering occurs on any file with that filename in any directory on the current server.

After choosing OK, you are returned to the Define Metered Application dialog box.

7. Select the General property sheet.
8. Type the full name of the application in the Full name text box.
9. Use the spin control to specify the maximum number of concurrent users in the Maximum current usage text box.

This value should reflect the number of licenses that you purchased for the application you are registering. One license is the default.

Note: If you do not want to enforce the maximum usage as specified, clear the Maximum enforced check box. This will allow you to monitor application activity to determine how many licenses you really need, without preventing access to the application.

If you specify zero as the number of licenses, SiteMeter will deny execution of the application, thus preventing users from executing named files.

10. Use the spin control to set the Queueback Time.

Entering a queueback time is optional. Queueback time is the length of time in minutes that an application is held exclusively for a queued user after he or she has been notified of its availability. After the queueback time expires, that license becomes available to other users.

If zero is specified, the queueback feature is disabled. The default time is 5 minutes.

11. Choose OK to return to the Define Metered Applications dialog box.
12. Choose Close to exit this dialog box.

Note: The previous procedure outlines only the basic steps necessary to register an application for metering with SiteMeter. SiteMeter offers numerous additional options that you can use to enhance your software metering. Refer to the next section for procedural information on password protection, usage restriction based on time, assigning trustee rights, VIP metering and group metering.

Metered Application Options

The previous section described the basic information that should be specified to register an application for metering and also provided brief descriptions of the property sheets located in the Define Metered Application dialog box. The following section provides detailed procedures for all the options available on these property sheets. The following procedures assume that you have:

- Chosen Tools | Metered Applications,
- Selected either the Add or Modify feature, and
- The Define Metered Application dialog box is displayed.

Assigning a Password

SiteMeter allows you to assign passwords to metered applications for enhanced administrative security. You must supply this password every time you want to change a metered application's setup.

Note: Assigning a password does not require users to enter that password before running the application. Instead, it protects the metered application information you entered from any unauthorized changes.

Use the following procedure to assign a password to a metered application.

1. Select the General property sheet.
2. Select the Password protected option.

The Password feature is enabled.

3. Choose Password.

The Password dialog box is displayed.

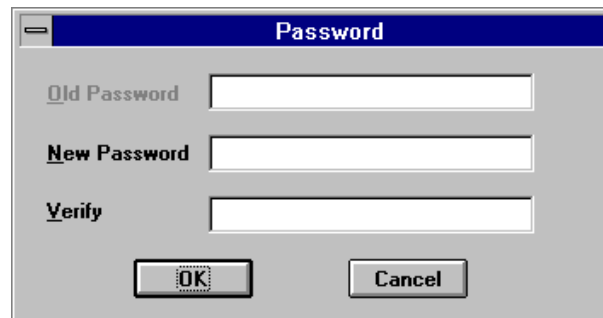


Figure 4-11: Password dialog box

If you have not assigned a password to this application previously, the Old Password text box is disabled. If this metered application does have an assigned password, then you must enter the old password first before changing it.

4. Type the desired password in the New Password text box.
For added security, asterisks appear as you type the password.
5. Confirm the password by typing it again in the Verify text box.
Again, asterisks appear as you type.
6. Choose OK to return to the Define Metered Application dialog box and save your password.

Restricting Usage Based on Time

SiteMeter allows you to restrict the usage of an application by network users to a specified time range. This option is useful if you do not want people to access the software after normal business hours; or conversely, if you *do* want to restrict access to certain software applications until after normal business hours.

Use the following procedure to restrict software usage.

1. Select the General property sheet.
2. Select the Usage Permitted option.

The From: and To: spin boxes are enabled.

3. Specify the time range during which users can access the metered application in the appropriate spin boxes.

The default range is 8:00 a.m. to 5:30 p.m.

4. Choose OK to save this setting and return to the Define Metered Applications dialog box.

Assigning Trustee Rights

SiteMeter allows you to grant temporary rights (trustee assignments) for specific directories to users while an application is running. For example, you can configure the metering of an application so that users have rights to the ACCOUNTS directory only while they are running the Accounts Receivable package. This prevents users from copying, viewing or deleting financial data files from outside the application.

If you need a continuous “base” of rights in a directory affected by a Secured Directory definition, you must define those rights via SYSCON’s Group Inheritance.

If a user is a Supervisor or has Supervisor Equivalence, the Directory Security Mask feature does not affect that user.

If you define Directory Security for an application and that application calls another application (e.g., a menu system), the called application will not automatically receive Directory Security rights. If you want the called application to have Directory Security rights, you must meter and grant rights to each called application.

Use the following procedure to grant trustee rights.

1. Select the Rights Masks property sheet.
2. Choose Directories.

The Select a Drive/Directory dialog box is displayed. This dialog box allows you to traverse all directories.

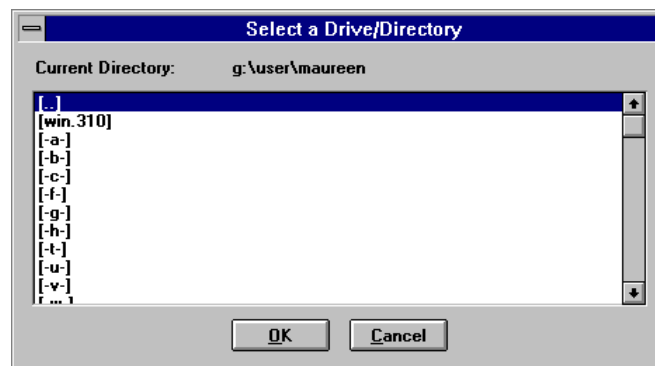


Figure 4-12: Select a Drive/Directory dialog box

3. Select the desired drive.

A list of directories on that drive is displayed.

4. Select the desired directory from the list.

The new drive/directory is displayed as your Current Directory. This is where you will grant trustee rights.

5. Choose OK to grant rights.

The Select Rights Mask dialog box is displayed.

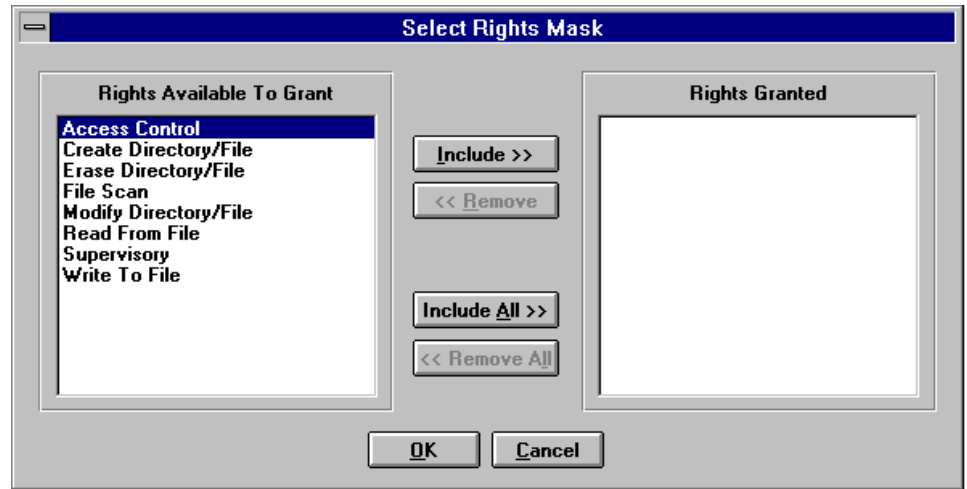


Figure 4-13: Select Rights Mask dialog box

6. To assign rights, select the desired right from the Rights Available to Grant list box and choose Include.

The right is transferred to the Rights Granted list. To grant all rights, choose Include All.

If you want to remove a right you have already assigned, select the right from the Rights Granted list box and choose Remove. To remove all rights, choose Remove All.

7. Choose OK to return to the Define Metered Application dialog box.

The rights you assigned and the directory in which they were assigned are shown in the text box on the Rights Masks property sheet.

8. Repeat steps 1 through 6 for all directories where you want to grant rights.
9. Choose OK to return to the Defining Metered Applications dialog box.

Specifying VIP Users

The VIP property sheet in the Define Metered Application dialog box allows you to specify which users are allowed access to an application regardless of the currently available set of licenses. For example, even if all licenses for a given application are in use, a member of the VIP list is still able to access the application. All other users, however, remain blocked or queued.

Use the following procedure to specify VIP users.

1. Select the VIP property sheet.
2. Select the desired user from the Non-VIP Users list box.

All users are by default non-VIP users.

3. Choose Include.

The selected user moves to the VIP Users list box. To include all users as VIP Users, choose Include All.

If you want to remove a user from the VIP user list, select the user from the VIP Users list and choose Remove. That user moves back to the Non-VIP User list. To remove all VIP users, choose Remove All.

4. Choose OK to return to the Define Metered Applications dialog box.

Specifying Groups

The Group property sheet in the Define Metered Application dialog box allows you to restrict the metering for an application to specific groups (i.e., user login groups) on a NetWare server. You can restrict access to a particular application to a set of NetWare groups (this works for both NetWare 3.x bindery groups and NetWare 4.x NDS groups). Any users who are not members of one of these groups may not access the application; even VIP users must belong to the group to use the application. By default, no groups are assigned to a metered application.

Use the following procedure to provide metering to a specific NetWare group.

1. Select the Group property sheet.
2. Select the desired group from the Groups Not Included list box to include a group in the metering setup.
3. Choose Include.

The selected group moves to the Groups Included list box. To include all groups, choose Include All.

If you want to remove a group from a metering setup, select the group from the Groups Included list and choose Remove. That group moves back to the Groups Not Included list box. To remove all groups, choose Remove All.

4. Choose OK to return to the Define Metered Applications dialog box.

Editing the Queued User List

SiteMeter offers extensive administration capabilities to give you added control over software usage on your network. Most of these functions are described in Chapter 6, “Enterprise Monitoring.” The Define Metered Application dialog box includes the Queued Users property sheet from which you can add and remove users to and from the queued user list. This is particularly useful if a user does not want to be queued for an application.

Use the following procedure to edit the queued user list. (This procedure assumes you have chosen Edit from the Queued Users spreadsheet.)

1. Select the Queued Users property sheet.
2. If you want to add users to the queue, select the desired users from the Non-Queued/Non-Current Users list.
3. Choose Include.

The user is moved to the Queued Users list box. Choose Include All to include all Non-Queued/Non-Current Users.

If you want to remove a user from the queue, select the desired users from the Queued User list box and then choose Remove. The user is moved to the Non-Queued/Non-Current Users list. To remove all non-queued/non-current users at once, choose Remove All.

4. Choose OK to save your changes and return to the Defined Metered Applications dialog box.

Additional Administrative Options

This section describes several procedures that give you additional administrative control over the applications you have registered for metering.

Modifying a Metered Application's Configuration

You can modify any of the metered application information you provided when registering the software for metering. Simply change the settings you specified on the property sheets in the Define Metered Application dialog box.

Use the following procedure to change metered application's settings.

1. Choose Tools | Metered Applications.

The Define Metered Applications dialog box is displayed.

2. Select the application you want to modify.
3. Choose Modify.

If the application does not have a password associated with it, the Define Metered Application dialog box is displayed with all the information you provided when registering this application for metering.

If the application does have a password assigned to it, a dialog box is displayed prompting you to enter that password. Enter the Metered Application Password and choose OK.

4. Make all necessary changes to the information shown on any of the metering property sheets in this dialog box.
5. Choose OK to save changes and return to the Define Metered Applications dialog box.

Removing Metered Applications

You can remove metering registration from an application. This procedure does not remove the application from your network—it merely releases it from being metered by SiteMeter.

Use the following procedure to delete applications from SiteMeter.

1. Choose Tools | Metered Applications.

The Define Metered Application dialog box is displayed.

2. Select the application to delete from the Currently Metered Applications list box.
3. Choose Delete.

If the application has a password associated with it, you are prompted to enter that password before the deletion will be completed.

A SiteMeter message box is displayed.



Figure 4-14: Deleting a selected metered application

4. Choose Yes to delete the metered application.
5. Choose Close to exit the Define Metered Applications dialog box.

Replicating Metered Application Configurations

SiteMeter offers a convenient option that allows you to replicate the metering configuration for one or more applications from one server to one or more other servers. For example, if you register WordPerfect on one server, you can use this feature to replicate the license configuration on all other servers. This option is a very powerful tool that can reduce your workload when registering applications for metering.

Use the following procedure to simplify your registration process.

1. Choose Tools | Replicate.

The Replicate Metered Application Configuration dialog box is displayed.

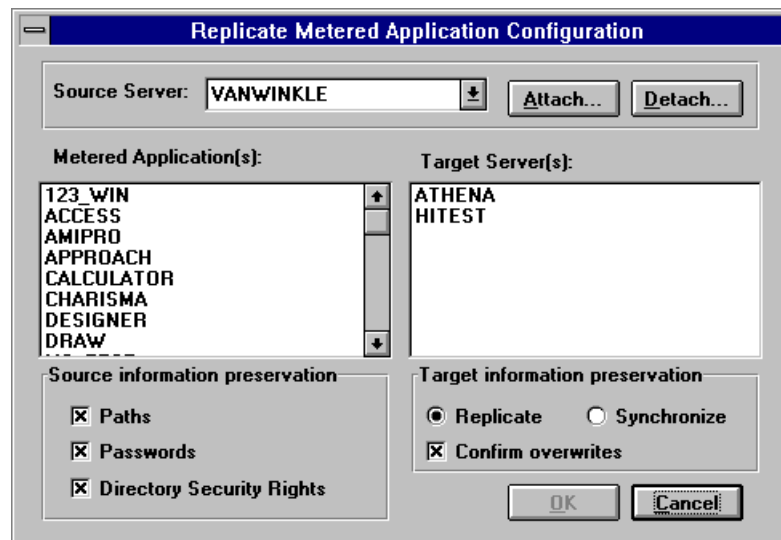


Figure 4-15: Replicate Metered Application Configuration dialog box

The source server is shown in a drop-down list box at the top of the dialog box. If you are not attached to the desired file server, choose Attach (refer to Chapter 3, “Getting Started” for instructions on attaching to a new file server).

2. From the Metered Application(s) list box, select the desired metered application(s).
3. Select the desired target server(s) from the Target Server(s) list box.

The OK option becomes enabled.

Note: You can only replicate to servers on which the SiteMeter database files and NLMs exist and have been installed during SiteMeter’s installation for those servers.

4. If you want to preserve any of the optional source information, select the desired option (paths, passwords, or directory security rights).

Note: If you select to preserve your paths or directory security rights, be sure that the destination server has the same path. The metered application being replicated will take on the same volume and directory structure as the source. If the path to the application is different, the application will not meter and the directory security rights will not work; everything defined in the metered application would point to the wrong location.

5. Select either Replicate or Synchronize in the Target information preservation group.

These are toggled radio buttons:

- **Replicate** - creates all new metered applications and overwrites any existing metered applications.
- **Synchronize** - updates those metered application definitions on the target server which already exist on the target server *and* which are selected from the source server for synchronization. For example, if you selected the Paths check box and File Server A's (source) path = Apps:\Winapps\Excel and File Server B's (destination) path = Volz:\Windows\Excel, and everything else was exactly the same, the Synchronize option would only modify the path.

6. If you want to confirm overwrites, select this option.

7. Choose OK.

A SiteMeter message box appears asking, "Are you sure that you want to proceed with replicating the selected metered application objects from server [SERVER NAME] to the selected target servers?"

8. If you want to proceed with the replication process, choose Yes.

The metering configuration is replicated to the selected target servers.

Chapter 5 Enterprise Metering

This chapter explains how to configure your metered applications for enterprise metering.

Enterprise Metering

With its advanced metering capabilities, SiteMeter offers the ability to meter a single application across multiple file servers. When users request an application in single server metering environments, they can only use an available license for the application on the file server on which the application resides. With enterprise metering, however, users can use any license for that application on any file server on the network, as long as SiteMeter is installed. Sharing and load-balancing application licenses for all file servers with SiteMeter installed reduces the likelihood of users' being queued when requesting an application. Not only does it try to prevent queued users by balancing extra licenses across the network, but it also finds available licenses for those users who do get queued by searching on other file servers. With enterprise metering, applications become available sooner than would otherwise be possible.

SiteMeter uses the IPX and TCP/IP protocols (to enable metering across WANs) for communication between file servers. As the network administrator, you retain absolute control over which file servers can share licenses and which cannot. In addition, you can specify the minimum number of licenses that should be kept at a server for a given application should you want a certain number of licenses to remain at a file server.

This chapter outlines the steps necessary to configure your servers to share licenses.

What Are License Domains?

A license domain is a group of servers that you specify to share licenses. SiteMeter provides license security on your network by allowing you to assign each server a license domain name and password. If a user requests an application for which all licenses are taken on that particular server, SiteMeter uses IPX or TCP/IP to search for an available license on another server. Servers that share license domain names

and passwords can share licenses—servers that have different license domain names and passwords, on the other hand, cannot obtain licenses from each other. Providing this level of license security prevents unauthorized access or tampering with the licenses on a network.

The following scenario demonstrates the security rules for two servers (A and B). These rules are important in setting up license domain names and passwords on your network.

Server A sends a license request to Server B. Server A must have the same license domain name and password as Server B in order to be granted access to Server B. Otherwise, Server A is denied access.

- If Server B has no license domain name, Server A is always granted access to Server B.
- If Server B has no license domain password, Server A must only have the same license domain name to be granted access to Server B.

The diagram below illustrates in detail how license domains function.

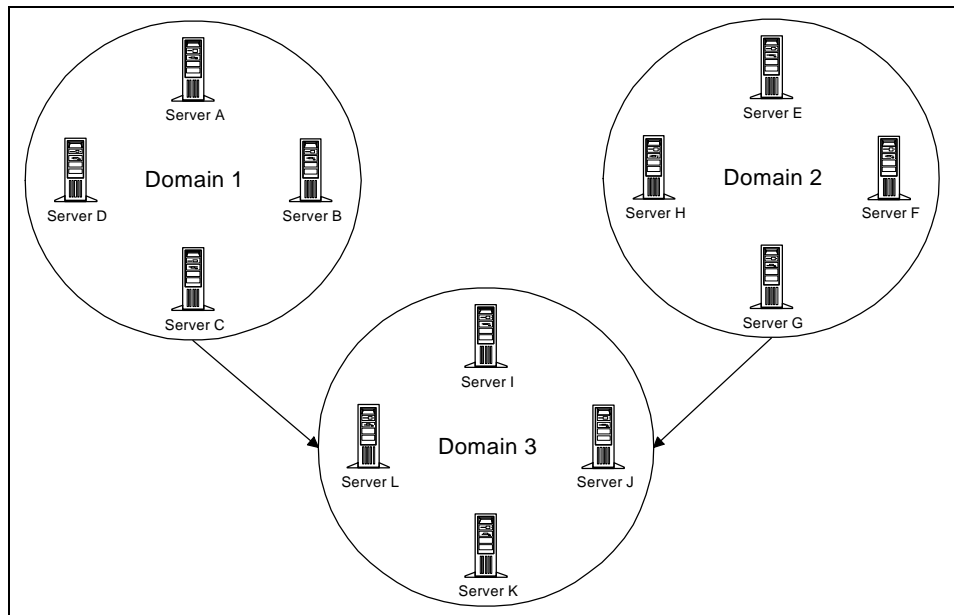


Figure 5-1: License Domains

Figure 5-1 shows three license domains: 1, 2 and 3. Servers A, B, C and D all have the same license domain name and license domain password and therefore are grouped into the same license domain: License Domain 1. Likewise, Servers E, F, G and H all have the same license domain name and password and are grouped into License Domain 2. Servers I, J, K and L have no license domain name (therefore no

license domain password) and are by default grouped into License Domain 3. The security rules as applied to this scenario are listed below:

- A server in License Domain 1 can access other servers in License Domain 1 but cannot access servers in License Domain 2.
- A server in License Domain 2 can access other servers in License Domain 2 but cannot access servers in License Domain 1.
- A server in either License Domain 1 or License Domain 2 can access servers in License Domain 3.
- A server in License Domain 3 can access other servers in License Domain 3 but not servers in License Domain 1 or License Domain 2.

Setting up license domains in SiteMeter is simple—all the information is configured from two dialog boxes. The procedures in this chapter explain how to configure enterprise metering.

Configuring Enterprise Metering

To configure enterprise metering on your network, you need several pieces of information. There are three new configuration options for each metered application in SiteMeter, as described in the table below. The server will use the settings of these options when servicing queued users and balancing application licenses. These options are:

Option	Description
Globally Shared License	If this option is set, the metered application relinquishes licenses to the server as needed and attempts to obtain them as needed. If this option is not set, the server neither takes licenses from the metered application nor obtains licenses for the metered application.
Minimum Licenses	This option denotes the minimum number of licenses the metered application can reserve for exclusive use for the server on which the metered application is defined, thereby preventing the server from leaving the metered application with too few licenses. In other words, if the maximum licenses available for use is equal to Minimum Licenses, another server cannot take a license from the metered application.

Global Balancing Threshold	This option determines when an additional license is needed for the metered application so queued users can be prevented. When the maximum concurrent usage (as specified when registering applications for metering) on the specified server falls below the Global Balancing Threshold, the NLM tries to obtain licenses for the metered application until the maximum licenses is no longer less than the threshold.
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The above options are set from the Global property sheet in the Define Metered Application dialog box.

To configure enterprise metering for your network, you need to register single applications for metering and then set up license domains on your network.

Note: The metered application name must be identical on all file servers that will be sharing the licenses.

Setting Up Single Applications for Enterprise Metering

Before an application can be metered across file servers, you need to register it with SiteMeter. Follow the procedure outlined in Chapter 4 entitled “Registering an Application for Metering” to set up your applications for metering.

The following procedure assumes that you have:

- Chosen Tools | Metered Applications,
- Selected an application from the list,
- Selected Modify, and
- The Define Metered Application dialog box is displayed.

Once you have specified all the required information for registering, use the following procedure to enable this license to be shared globally.

1. Select the Global property sheet.

The Global property sheet is displayed.

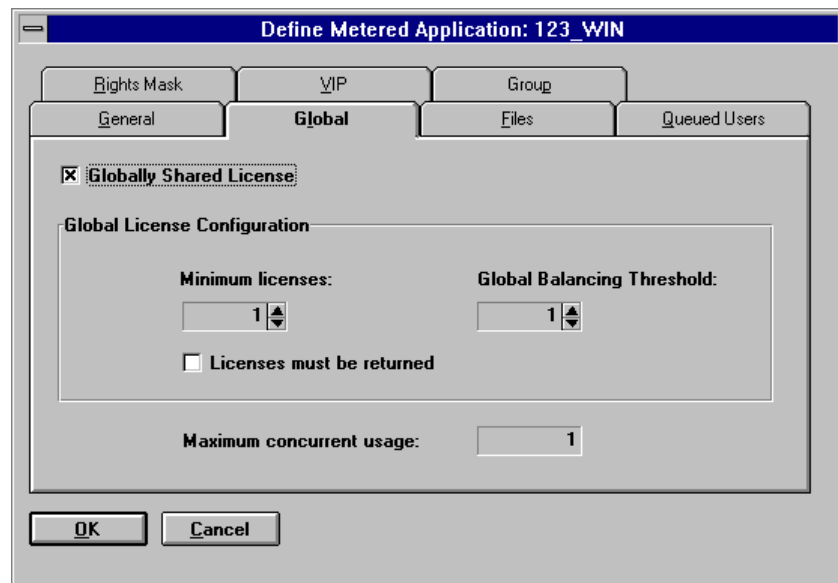


Figure 5-2: Global property sheet

2. Select the Globally Shared License check box to specify that the given metered application's licenses are to be shared within the license domain.

Choosing this option enables the remaining fields on this property sheet.

3. Specify how many licenses should remain at the given server in the Minimum licenses text box.

The difference between this number and the Maximum concurrent usage value set in the General property sheet is the number of licenses for this application that can be shared across servers.

The default is 1.

Note: For your convenience, the number of concurrent users that you had specified on the General property sheet is displayed at the bottom of the Global property sheet for your reference only. To change this value, you must return to the General property sheet.

4. If you want to return any borrowed licenses to this server, select the Licenses must be returned check box.

Otherwise, the server that borrowed the license gets to keep it.

5. Specify the Global Balancing Threshold in the spin box.

This trigger value indicates when the enterprise metering load-balancing NLM should begin looking to borrow licenses from other servers to service the needs of this server.

6. Choose OK to save your changes and return to the Define Metered Applications dialog box.

Repeat these steps for every application that you want to meter and load-balance across your enterprise.

Setting Up License Domains

License domains were discussed in detail earlier in this chapter. License domains are established in the System Settings dialog box.

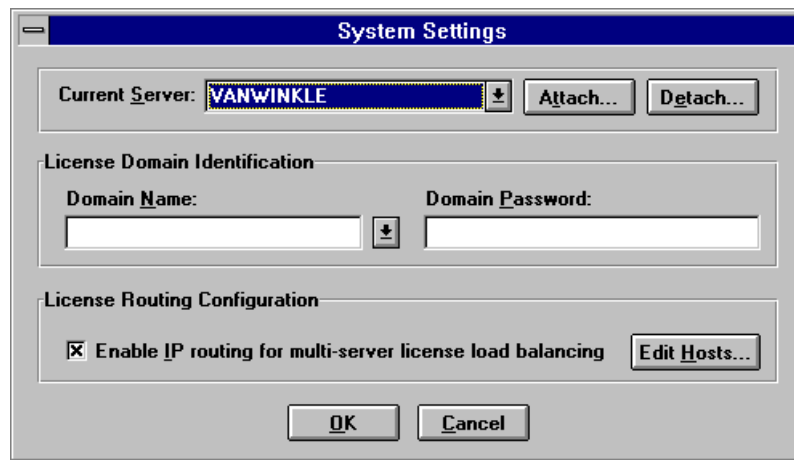


Figure 5-3: System Settings dialog box

The fields in this dialog box support secure license sharing between any two file servers.

Field	Description
Domain Name	This 48 character string uniquely identifies a set of servers that can share licenses. Any two servers that are intended to share licenses must have the same license domain name.
Domain Password	This password provides further license sharing security.
Enable IP Routing for multi-server license load balancing	The enterprise metering load-balancing NLM provides support for IP routing of licenses; this capability is enabled by selecting this option.

If you want to perform enterprise metering (i.e., IP Routing), you must specify these options in the System Settings dialog box.

Use the following procedure to specify your system settings.

1. Choose Configure | Server System Settings.
The System Settings dialog box is displayed.
2. Select the domain name or type in a new domain name in the Domain Name drop-down list box.
3. Type the domain password in the Domain Password text box.
4. If desired, select the “Enable IP routing for multi-server license load balancing” option.

When selected, the Edit Hosts button is enabled. Choosing Edit Hosts opens a Notepad file for you to edit as desired. If no file exists, an error message appears asking you if you want to create the file.

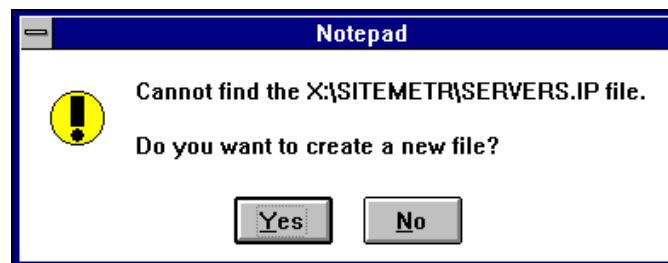


Figure 5-4: Locating the SERVERS.IP File

By default, no SERVERS.IP file will exist.

This file must contain the TCP/IP address and the file server name. The following is a sample SERVERS.IP file:

```
129.1.0.1      CALIFORNIA
129.1.0.2      LONDON
129.1.0.3      AUSTRALIA
```

Choose File | Save to save the new SERVERS.IP file.

Note: The SERVERS.IP file must exist on all file servers performing the IP Routing method for enterprise metering.

Also note that when you use the IP only on a file server with the SMRENT loaded and another server needs a license, the SMRENT will first send out a query via IPX, then via IP. This will cause a delay of 5 minutes or more before the license is granted.

5. Choose OK to save your changes and return to the SiteMeter console.

That concludes the procedure for configuring enterprise metering across your WAN network.

Chapter 6 *Enterprise Monitoring*

This chapter describes the numerous ways that you can monitor the usage of software applications on your network.

Introduction

SiteMeter provides the tools you need to monitor metered application usage. Most of the administration functions described in this chapter can be accessed from the Application Usage Monitor to give you maximum flexibility and control over your network applications from a single window.

SiteMeter offers numerous features that allow you to monitor what applications are being used and by whom on either a single server or across multiple servers. Some of these features can be accessed by network users as well. The following chart lists all of the monitoring features and indicates who can access them.

Feature	Network Administrator	Network Users
View single server application usage	✓	✓
View multi-server application usage	✓	✓
View a list of both current and queued users for an application	✓	✓
Send a message to a current or queued user	✓	✓
Modify the display characters of a given Usage Monitor	✓	✓
Change the number of licenses for a metered application	✓	
Release a user from being metered	✓	
Edit a metered application's configuration	✓	
Launch another McAfee application in a context sensitive manner	✓	

The procedures for network users are the same as those for network administrators described in this chapter. Refer to the section “Granting Network Users Access to the Usage Monitor” later in this chapter for information about configuring the SiteMeter Usage Monitor for use by network users. While these features are designed primarily for network administrators, giving network users access to certain monitoring functions can enhance their software usage productivity.

Viewing Application Usage

With SiteMeter, you can view application usage across your network in a single window called the Usage Monitor. Your management capabilities from this point are extensive—for example, you can determine the number of current and queued users for a metered application on the network, view application usage on a specified file server, and even view the usage for a given application across all servers on which it is installed. The last feature is a powerful feature in enterprise metering—from a single window, you can monitor application usage on all your network file servers for a given application.

This section of the chapter explains how to access this monitor; subsequent sections describe the numerous administrative options you can take advantage of from this window.

Use the following procedure to view application usage on a single server.

1. Choose Tools | Application Usage.

The View Application Usage dialog box is displayed.

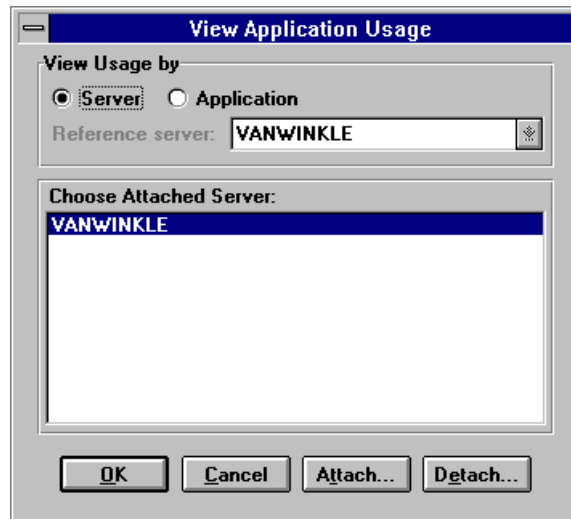


Figure 6-1: View Application Usage dialog box

2. Select the Server radio button.
3. Select the desired file server in the Choose Attached Server list box.

If you are not currently attached to the desired file server, choose Attach and then supply your user name and password for that file server. Refer to Chapter 3, "Attaching to and Detaching from File Servers" for more detailed instructions.

4. Choose OK.

The Application Usage window for the file server you have selected is displayed.

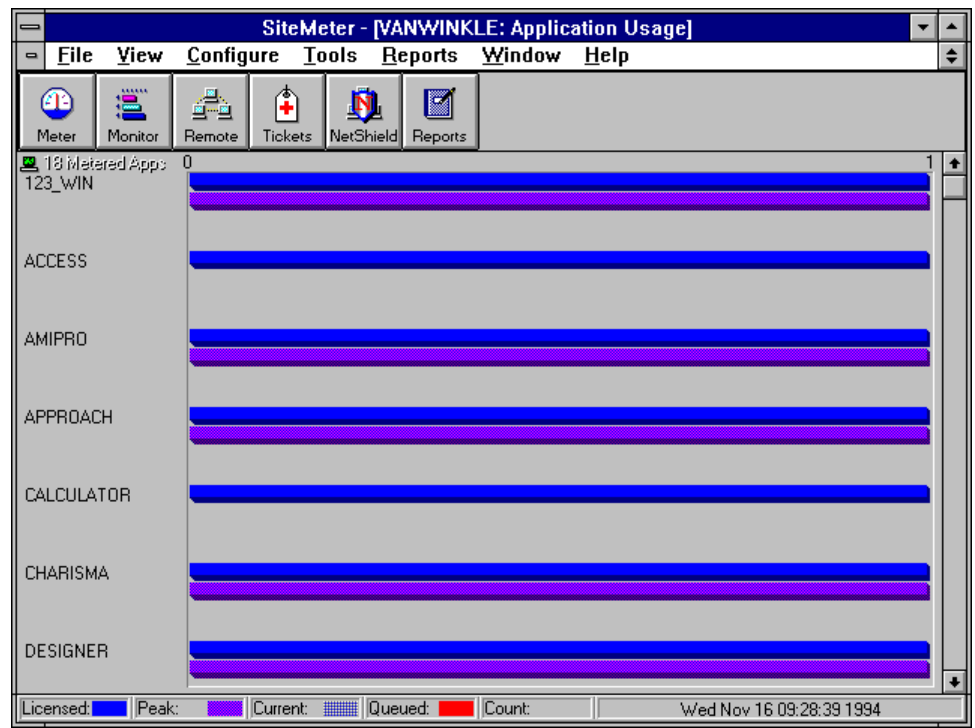


Figure 6-2: Application Usage window

From this window you can view in graph form the number of:

- **Maximum Number of Concurrent Users** of all metered applications (the total number of licenses purchased for this application)
- **Peak users** of all metered applications (the total number of current users plus the total number of queued users)
- **Current users** of all metered applications
- **Queued users** of all metered applications

You can also view the usage of a single application across multiple servers. Use the following procedure to view an application's usage across your enterprise.

1. Choose Tools | Application Usage.
The View Application Usage dialog box is displayed.
2. Select the Application radio button.
This enables the Reference server drop-down list box.
3. Select your reference server in the Reference server drop-down list box.

The reference server must have a copy of the application whose usage you want to view. For example, if Servers A and B have WordPerfect and Server C does not, then you would choose either Server A or B as your reference server to see a list of metered applications that includes WordPerfect.

If you are not currently attached to the desired file server, choose Attach and then supply your user name and password for that file server. Refer to “Attaching to and Detaching from File Servers” in Chapter 3 for more detailed instructions.

4. From the list box, select the desired application.
5. Choose OK.

The Enterprise Usage window is displayed.

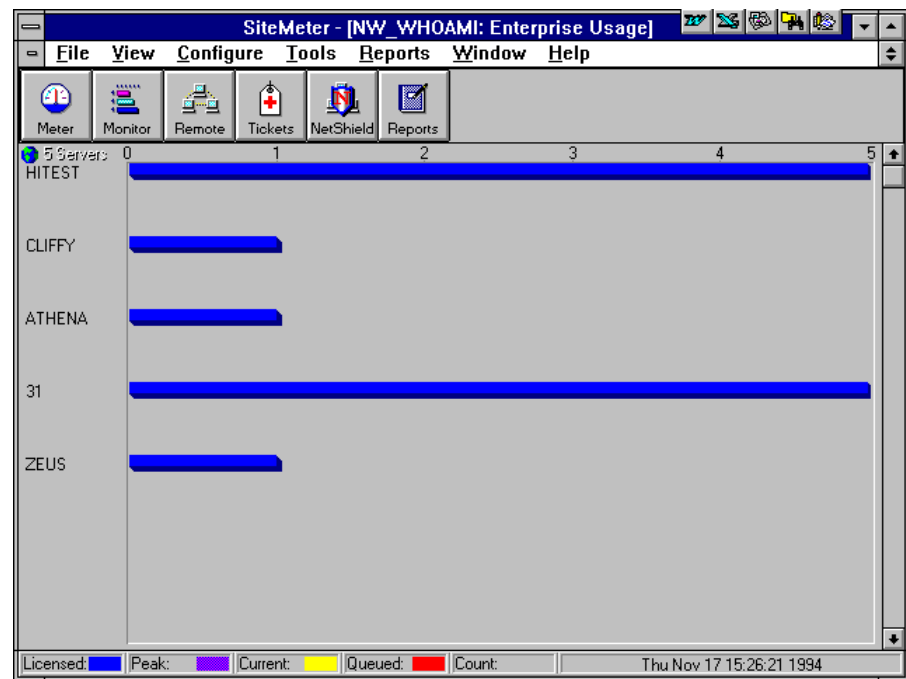


Figure 6-3: Enterprise Usage window

From this window you can view in monitor form the number of:

- **Maximum Number of Concurrent Users** of all metered applications (the total number of licenses purchased for this application)
- **Peak users** of all metered applications (the total number of current users plus the total number of queued users)

- **Current users** of all metered applications
- **Queued users** of all metered applications

Using the InfoPop Windows

The Application Usage window displays the number of queued and current users for metered applications in graph bars. The Usage Monitor also provides additional usage information with convenient infopop windows.

From this window you can view the following information:

Item	Description
Licensed	Number of licenses for each metered application.
Peak	Maximum number of current users for metered applications.
Current	Number of current users for metered applications.
Queued	Number of queued users for metered applications.
QPeak	Maximum number of queued users at one time.
Borrowed	Number of licenses currently borrowed from other servers.

Use the following procedure to access the infopop windows.

1. Select the desired application from the list along the left hand side of the window.
When the cursor is in this area, it changes to a magnifying glass.
2. Hold down mouse button 1 to display an information box that contains the above information.

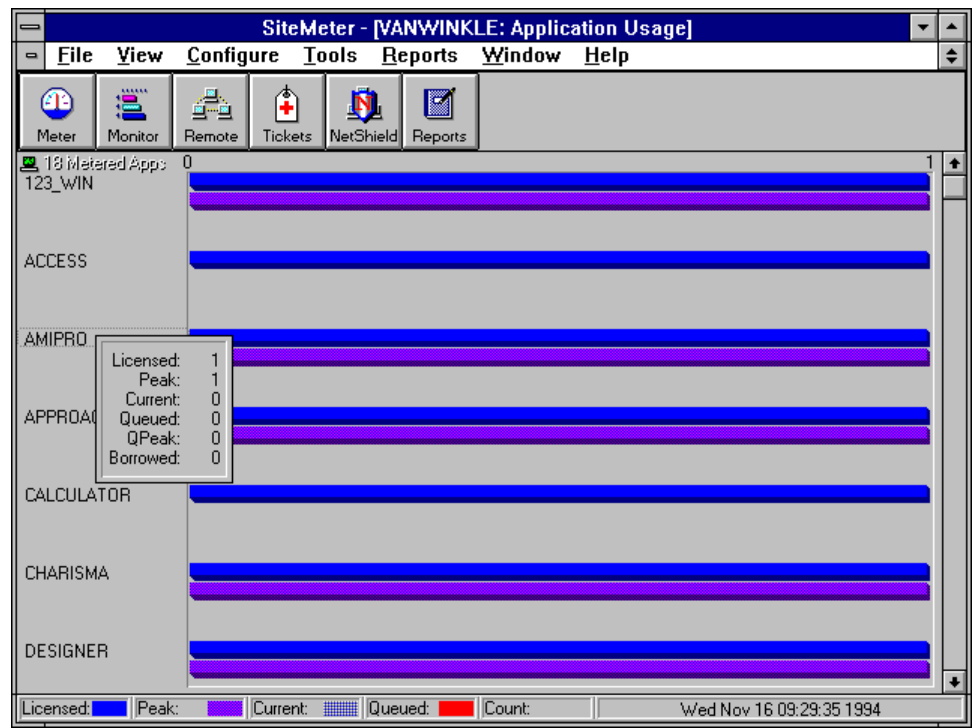


Figure 6-4: InfoPop Window with Usage Information

System Configuration Options from the Application Usage Monitor

While viewing the Application Usage Monitor, you can change the number of maximum concurrent users and other metered application settings (e.g., queueback time, trustee rights, etc.).

In addition to these important management options, you have great flexibility with the Usage Monitor itself. With control over the usage scale, graph bar colors and the update interval, you can tailor the appearance of the monitor to suit your individual needs—all while viewing the software usage activity on your network.

Changing the Number of Maximum Concurrent Users

You can increase and decrease the number of licenses on your network as needed by changing the number of maximum concurrent users from the Usage Monitor. SiteMeter offers you several methods for changing this value. The most direct is “license-dragging.” Using your mouse, you can change the number of licenses for an application simply by dragging the graph bar to the desired value.

Use the following procedure to change licenses from the graph bars.

1. In the Application Usage Monitor, position the cursor at the end of the Licensed bar (i.e., point to the end of the graph bar).

When you position the cursor on this line, it changes from a standard arrow to a horizontal black double-arrow.

2. Click and hold down mouse button 1.
3. Use the mouse to drag the line to the desired value.

The Count box in the status bar at the bottom of the window displays the number of licenses as you move the cursor to the new value.

Once you change the value, the Edit License Maximum dialog box is displayed.

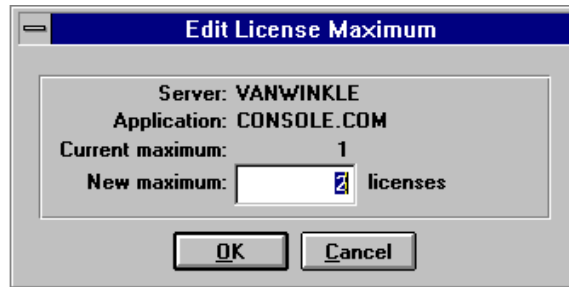


Figure 6-5: Edit License Maximum dialog box

This dialog box confirms your change and displays the following information:

Item	Description
Server	Target file server
Application	Name of the metered application
Current Maximum	Current maximum number of licenses for this application
New Maximum	New value you dragged to for this application

4. Choose OK to accept the new maximum number of concurrent users value.

If the value shown is incorrect, you can also edit the value by simply typing over it in the text box.

If the application is password-protected, you will be prompted to enter the password.

You can also change the maximum number of concurrent users on the General property sheet in the Defined Metered Application dialog box. For information about the Defined Metered Applications dialog box, refer to Chapter 4, “Setting Up Metered Applications.”

Editing Metered Application Settings

While viewing application usage, you can alter any of the metered application settings you specified when registering applications for metering. Simply access the Define Metered Application dialog box and change any of the information you specified on the property sheets when you set up the application for metering.

Use the following procedure to access this dialog box from the Usage Monitor.

1. Double click on the desired application in the list in the left hand side of the window.

The Define Metered Application dialog box for that specific application is displayed.

2. Follow the steps in the section entitled “Metered Application Options” in Chapter 4 to change the metered application information.

Configuring the Usage Monitor Display

The usage scale is the numeric scale displayed across the top of the Application Usage window. By changing the high value for the monitor, you can increase or decrease the number of users shown on the graph. For example, if you have 250 workstations on your network, you can set the high value to 250 to allow the bars to indicate usage by all your network users. If your network is large, but the number of licenses and concurrent users is small, you can set the value lower. You can also select which usage values you want to show on the Usage Monitor. For example, if you want to compare the peak usage with the number of licenses you have for an application, you can instruct the Usage Monitor to only display these values. With this level of flexibility, you can change the monitor to best suit your viewing needs.

Use the following procedure to change the usage scale.

1. In the Application Usage Monitor, position the cursor in the scale bar (which is directly beneath the title bar).

The cursor itself should change to a scale.

- 2. Double click to display the Edit Usage View dialog box.

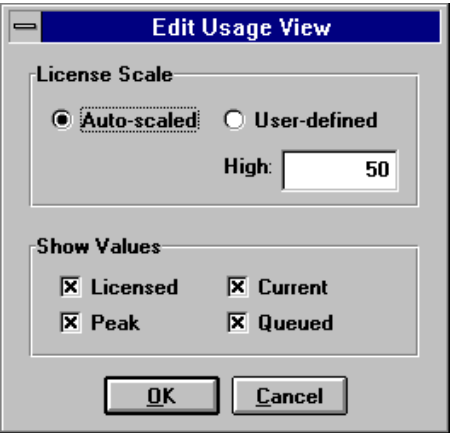


Figure 6-6: Edit Usage View dialog box

Note: You can also display this dialog box by choosing Configure | Edit Usage View.

- 3. Select either Auto-scaled or User-defined.

Item	Description
Auto-scaled	Allows the metering administration program to determine the maximum value of the scale.
User-defined	Allows you to determine the maximum value of the scale..

- 4. If you chose User-defined, type the maximum number of licenses to view in the High text box.

This value can exceed the maximum number of users for the file server. Licenses on the network can be greater than the number of users on a server—you can allow load balancing to handle the distribution of licenses. Refer to Chapter 5, “Enterprise Metering” for a complete explanation of how enterprise metering can enhance your software usage.

- 5. Select which usage values you want to show on the Usage Monitor.

You can choose one or more of the following:

- Licensed
- Peak
- Current

- Queued
6. Choose OK to save your changes and return to the Application Usage window.
The usage scale beneath the title bar now reflects the new maximum you specified.

Changing the Usage Monitor's Colors

You can change the colors used in the status bar of the Application Usage window for the number of licensed, peak, current and queued users. Change these colors to best suit your preferences.

Note: There is only one status bar for the whole application. The changes you make do not apply to individual Application Usage windows, but to all Usage Monitors.

Use the following procedure to change these colors.

1. In the Application Usage Monitor, position the cursor in one of the blocks of color in the status bar.
The cursor changes to a transparent arrow.
2. Double click at this point.
The Windows common dialog for color selection for that key is displayed.
3. Select a new color.
4. Choose OK to save your changes and return to the Application Usage window.
The new color is shown in the graph bars as chosen.

The colors can be changed in this manner for each item in the status bar.

Hiding or Showing the Status Bar

The Status Bar that appears at the bottom of the window applies to all Multiple Document Interface windows (including the current and queued user windows), even where the colors do not always show. You can hide or display the status bar on the SiteMeter console as needed. Showing the status bar indicates the color key and the license count when you are license-dragging to change the number of maximum concurrent users.

Hiding the status bar offers you more room to display the Usage Monitor.

Note: There is only one status bar for the whole application. The changes you make do not apply to individual windows, but to the entire console.

Use the following procedure to conceal the status bar.

- Choose View | Hide Status Bar.

This toggles the status bar on and off. When the status bar is hidden, this command in the View menu changes to Show Status Bar. By choosing the Show command, you can display the status bar again.

Setting the Update Interval

The Usage Monitor reflects the application usage on your network. You can update the monitor to reflect any changes by performing queries.

Each time a query is issued, whether initiated manually or automatically, SiteMeter updates the usage information on the monitor. The Query Indicator is the last item on the status bar; it is displayed for either manual or automatic queries.

The **Refresh** option allows you to update the application usage information on demand.

Use the following procedure to instruct SiteMeter to perform a query.

- Choose View | Refresh.

SiteMeter performs a query and updates the Application Usage monitor accordingly. The status bar at the right bottom of the window reflects the query's progress.

Note: You can also access this feature by pressing CTRL+Q.

By using the **Set Refresh Timer** option, you can specify the time between queries (which is when SiteMeter checks with the file server for application usage information).

Use the following procedure to set the refresh timer.

1. Choose Configure | Set Refresh Timer.

The Set Refresh Timer dialog box is displayed.



Figure 6-7: Set Refresh Timer dialog box

2. Enter the desired value.

You can enter a value in seconds from 0 to 9999.

3. Choose OK.

Note: You can also access this option by pressing CTRL+T.

Monitoring Current and Queued Users

SiteMeter offers extensive monitoring capabilities over both current and queued users. While viewing software activity on the Usage Monitor, you can see who is using which applications, get important information about your network users, and even send messages to queued users to inform them who else is using the application they want. From this single vantage point, SiteMeter gives you the following options for monitoring your network users:

- View who the current and queued users are for an application.
- Send messages to current and queued users.
- Release current users from metering.
- Edit the settings of a metered application.
- Launch another McAfee management application in a context-sensitive fashion.

Note: The steps in the rest of this section assume you have accessed the Application Usage Monitor. To do so, choose Tools | Application Usage.

Viewing Current and Queued Users List

From the Application Usage Monitor, you can view the name of each individual user who is using an application as well as the names of those waiting to use an application, as reflected by the graph bars.

Knowing who the current users of an application are is particularly helpful if other network users are trying to access that particular application. Once you determine who is currently using the application, you can find out when a copy will be available by asking those users how much longer they anticipate working in the desired application.

Once you access the list of users, you have additional administrative options to enhance your software control.

Use the following procedure to determine who your current and queued users are.

1. In the Application Usage Monitor, position the cursor in the area to the right of the application name within the graphic display.

A small menu box should be attached to the bottom right of the arrow. If no menu box appears, the cursor is not pointing to a place where information is available. Information is available where the number of users (licensed, peak, current and queued) are displayed with graph bars.

2. Click here to display a pop-up menu.

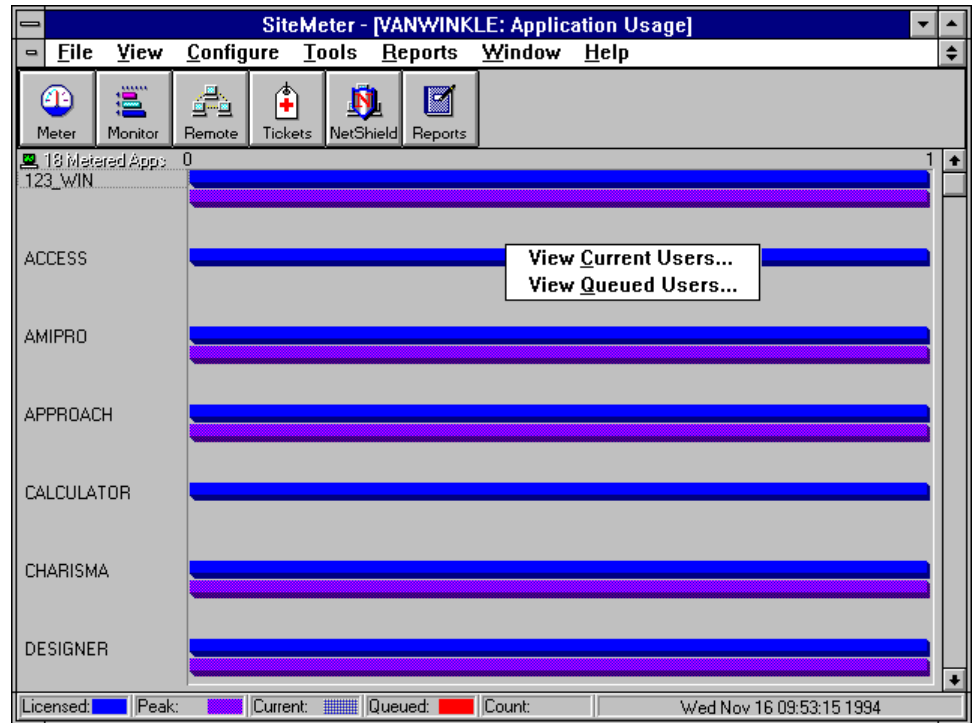


Figure 6-8: Viewing Users pop-up menu

When the pop-up menu is displayed, the application in question is outlined in the list along the left hand side of the window.

This menu contains the following items:

- **View Current Users** - the list of users currently using this application.
- **View Queued Users** - the list of users who are currently waiting to use this application.

Note: If the Queueback Time for the selected application is set to zero (0), the View Queued Users option is disabled.

3. Choose the desired command.

A window displays showing either the current or queued users, depending on which command you chose.

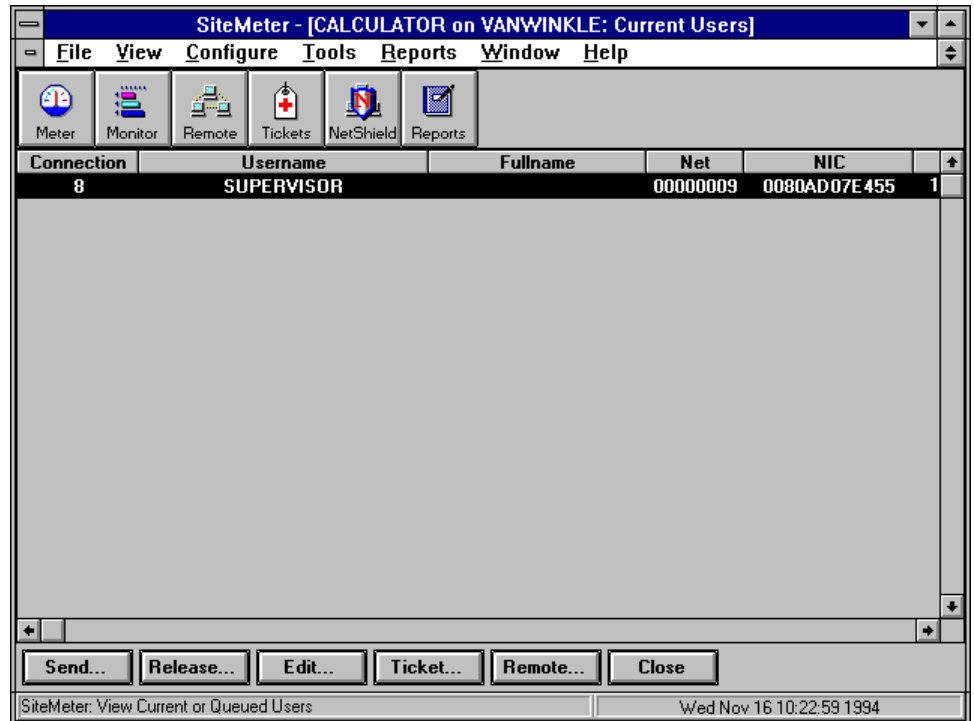


Figure 6-9: Current Users

For each user, the spreadsheet provides the connection number, user name, full name, network number, time into network and the network interface card address. For current users, it also shows the time into the application.

The following buttons are displayed along the bottom of the window:

- Send
- Release
- Edit
- Ticket
- Remote
- Close

Note: If you chose to view queued users, the Release button will be disabled.

The following sections describe each of these features.

Sending Messages to Users

You can send messages to current or queued users from this spreadsheet. This feature is useful if you want to ask users when they will be finished using an application.

Use the following procedure to send a NetWare Send message to a network user either currently using or waiting to use an application.

1. From the Current or Queued Users spreadsheet window, select the user to whom you want to send the message.
2. Choose Send.

The Send Message To User dialog box is displayed.

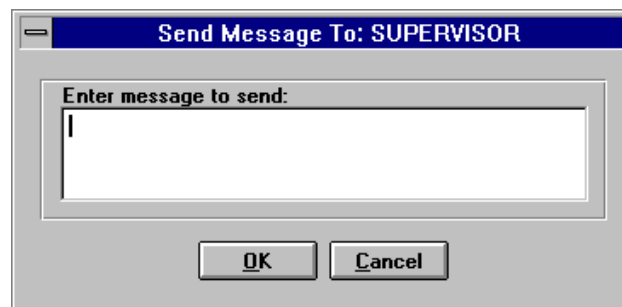


Figure 6-10: Sending a Message to a User

3. Enter the message in the text box provided.
4. Choose OK to send the message.

Releasing Metering on a Current User of an Application

The Release command allows you to release software metering on a current user of an application. This is helpful in the following scenario:

John is using the last available copy of WordPerfect. He goes into a meeting with his workstation still running the application. Meanwhile, Karen needs to use a copy of WordPerfect. The network administrator can release John's copy of WordPerfect from metering, freeing up a licensed copy for Karen.

When John returns from his meeting, he can still use the copy of WordPerfect running on his workstation (using the release feature does not exit that user from the application). Once he exits WordPerfect, however, he cannot get back in until another copy of the software frees up on the network.

Note: If you use the Release feature, you may be in violation of your software vendor's license agreement.

Use the following procedure to release a current user from metering.

1. From the Current Users spreadsheet window, select the user whom you want to release.
2. Choose Release.
3. If the metered application has a password associated with it, you are prompted to enter the password.

Enter the appropriate password and choose OK.

4. At the prompt "Are you sure you want to stop metering for this user's current use of this application? Note that the user will continue to be allowed to use the application." Choose Yes to verify your choice to release this user from metering.

If you chose Yes, the selected user is released from metering. The copy of the application he or she is using is released for use by another user.

Launching another McAfee Network Management Product

From the spreadsheet window, you can also launch another McAfee network security and management application (e.g., NetRemote or LAN Support Center) in a context-sensitive fashion. The launched application configures itself automatically to the current user you selected. For example, if you selected Jane and then launched NetRemote, you would have control of Jane's PC. Refer to Chapter 3, "Getting Started" for more information.

Use the following procedure to launch another McAfee network security and management application.

1. From the Current or Queued Users spreadsheet window, select the desired user.
2. Choose the desired capability from buttons along the bottom of the window.

Note: If you do not have the application loaded for the button you chose, an error box is displayed notifying you that the executable could not be found. The executables for these applications must be placed in a search path.

Viewing NLM Status

SiteMeter provides a quick and easy means of determining the status of all the product NLMs.

Use the following procedure to view the current NLM settings.

1. Choose View | NLM Status.

The View NLM Status dialog box is displayed.

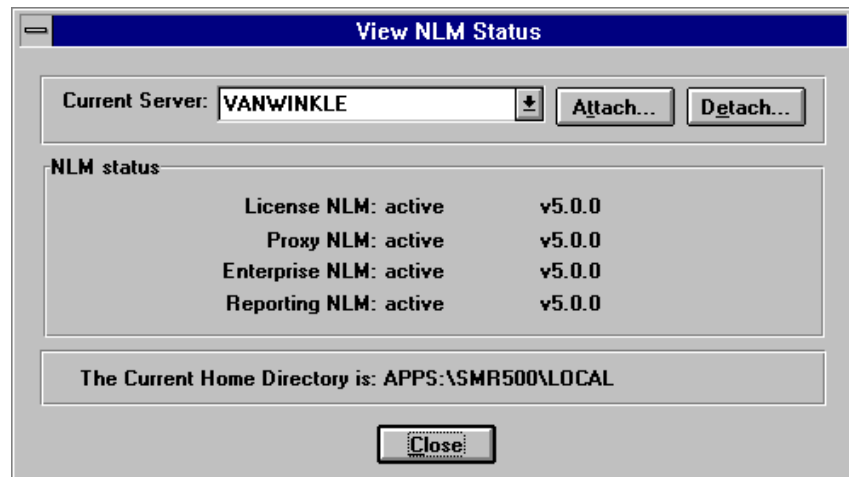


Figure 6-11: View NLM Status dialog box

If you are not attached to the desired file server, use the Attach feature (refer to “Attaching to and Detaching from File Servers” in Chapter 3 for further instructions).

The current server displays automatically. You can view the settings for other file servers by choosing the desired file server from the list box.

This dialog box indicates whether each NLM is active (loaded) or inactive and shows the version number for each. The following table describes each setting.

NLM	File Name	Description
License NLM	SITEMETR.NLM	Loaded first, it handles all the license metering and application restriction performed by SiteMeter.
Proxy NLM	SMRPROXY.NLM	Loaded after the SITEMETR.NLM, it works in conjunction with the SITEMETR.NLM by detecting the

		current program executions and forwarding that information to the SITEMETR.NLM.
Enterprise NLM	SMRENT.NLM	It handles all enterprise metering and load balancing by allowing licenses to be shared across file servers for maximum usage of the application's license.
Reporting NLM	SMRRPT.NLM	It gathers the data from multiple servers to a central location for enterprise-wide reporting purposes.

-
2. Choose Close to exit this dialog box.

Purging Usage Data

When the report data log files become very large, you may wish to purge this data. Performing a data purge is recommended when log files approach their capacity. If you enable one of the alerting options in the Report Configuration dialog box (refer to Chapter 7, “Enterprise Reporting” for instructions), a server console message will indicate when the log files are nearing their capacity. Currently, you can use one of two available methods to perform this data purge, depending on whether or not you are generating reports based on usage across your enterprise. Use one of the following procedures to purge the usage data.

Purging Data When Running Enterprise Reporting

If you are running Enterprise Reporting and would like to retain your usage data for future reference, you need only to make backup copies of the prepared data files. Use the following method to purge and save the usage files:

1. Use the ‘Prepare Report Data’ function to make consolidated copies of your data files.

The prepared files will be placed in the SITEMETR\PREPARED directory and can then be moved to your desired storage location, if you wish to save them for future reference. Your current Usage Log files are automatically purged after the data is consolidated. (For a full explanation refer to the section “Preparing Data for Consolidation” in Chapter 7, “Enterprise Reporting”.)

2. In order to restore this previous data, you need only copy these consolidated files to the SITEMETR\CONSOLID directory.

The data will then automatically become available again.

Purging Data When Not Running Enterprise Reporting

If you do not use Enterprise Reporting, and would like to backup the usage data before purging, you must copy the following data files manually from the SITEMETR\LOCAL directory to a desired storage area:

- MTL.DAT (Metering Logging file)
- MSL.DAT (Multi-Server Logging file)

To Purge the Usage Data on systems which are not using Enterprise Reporting, you will need to overwrite the existing data files located in the SITEMETR\LOCAL directory with their corresponding parent files located in the SITEMETR\TEMPLATE directory. Use the following method:

1. Exit SiteMeter at the workstation.
2. Unload the SiteMeter NLMs from the file server by typing STOPMETR at a console prompt.
3. From the workstation, copy the above named data files from the SITEMETR\TEMPLATE directory to the SITEMETR\LOCAL directory.

Be sure to Overwrite the existing files.

4. Re-load the NLMs at the file server, and restart SiteMeter at the workstation.

The Usage logs will now be cleared.

Granting Network Users Access to the Usage Monitor

SiteMeter enables your network users to monitor application usage and view user activity. These features enhance the users' ability to work effectively with the network's licensed software. Network users access these utilities through the Usage Monitor, as described in this chapter. They can also access these procedures from the Help menu on the Usage Monitor.

SiteMeter's Usage Monitor allows network users without SUPERVISOR rights to view the Application Usage Monitor. The Usage Monitor allows any networked user to determine who is using a particular metered application. This is useful when locked out of an application as the Usage Monitor shows you which users are using an application.

To allow users access to the Usage Monitor, the network administrator must put USAGE.EXE and the following associated .DLLs in a public directory.

- BWSPING
- DBAPI
- CHK4BRQ
- CTL3D
- NWCALLS
- NWNET
- MCAFINF
- BWCC
- TBPROLW
- TBPRO3W
- TLI_SPX
- TLI_WIN
- NWIPXSPX
- WBHANDLE

Users also need to have BREQUEST loaded to access the Usage Monitor.

Chapter 7 *Enterprise Reporting*

This chapter explains how to generate reports detailing metering activity on your network.

Introduction

SiteMeter's reporting feature is designed to help you manage your network software more effectively by placing important information about application usage right at your fingertips.

With just a few simple dialog boxes, you can generate the report you need quickly and easily. A variety of report types and formats offer you multiple reporting options—you can choose one of these predefined reports or create your own. Either way, SiteMeter allows you to run the reports that best suit your business needs.

SiteMeter reports are more than raw data—they are effective management tools that you can use to make important decisions about software usage on your network. For example, by running a report on enterprise metering, you can access usage information about network software across all of your file servers. You can also run a report on a single user to determine what applications he or she uses and when. Still another option is running a report on all metered applications to gauge additional software needs based on frequency of use. SiteMeter's reports put all of this flexibility at your fingertips.

Note: The Crystal Reports software is installed using the SiteMeter install utility. Refer to the instructions in Chapter 2, "Installation." When installed, a Crystal Reports program icon is added to the McAfee Program Manager group. Procedures for using Crystal Reports are described in the help facility located in your group install.

Enterprise Metering Reports

With SiteMeter's reporting capability, you can track application usage across all file servers on which SiteMeter is installed. Once you specify a report type, the reporting NLM accesses metered application information stored in databases and generates reports using this data to create useful management tools.

How Enterprise Reporting Works

To generate reports on software usage across your enterprise, you must group network file servers into one or more reporting domains. A reporting domain is a logical grouping of file servers that share the same reporting domain name and password. A file server may only belong to one reporting domain; there is no limit on the number of servers in a reporting domain.

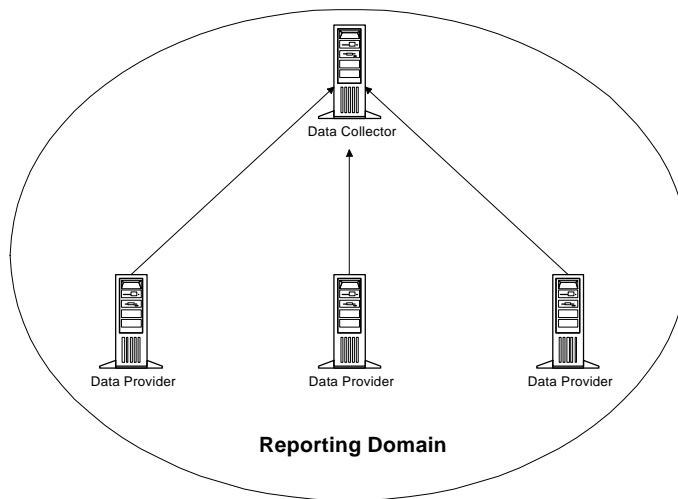


Figure 7-1: A Reporting Domain

Note: A reporting domain is different than the license domain which was discussed in Chapter 5, “Enterprise Metering.”

In a reporting domain, one server is designated as the data collector and the rest of the servers are data providers. A data collector collects software activity data from all member servers in its domain and maintains it in the global database (\SITEMETR\GLOBAL directory). The collector periodically retrieves local databases from the data providers in its domain and adds that data to its global databases.

A data provider maintains the local data for its server until the data collector retrieves it. Once a collector has retrieved data from a provider, the old data in the SITEMETR\LOCAL directory is no longer maintained by the provider. Data does not cross a domain boundary except through the use of the consolidation feature, as described later in this chapter.

Specifying Data Collectors and Data Providers

Note: All servers which are to participate in enterprise reporting must have the SMRRPT.NLM loaded. Please refer to the section “Loading the NLMs” in Chapter 2, “Installation.”

The first step in setting up enterprise reporting is configuring your enterprise network into logical reporting domains. For example, in a company with different functional departments, such as marketing, sales and engineering, reporting domains may be set up for each functional department. In this example, you could set up a domain by specifying all the file servers in the Sales department and creating a reporting domain called Sales-Domain. A reporting domain consists of a single server designated as a data collector, and all the other servers in the group are data providers. The same could be done to create a reporting domain for the servers in the engineering department.

You specify which file servers are data collectors and which are data providers based on your enterprise reporting needs. All of the reporting configuration is performed from the Report Configurations dialog box.

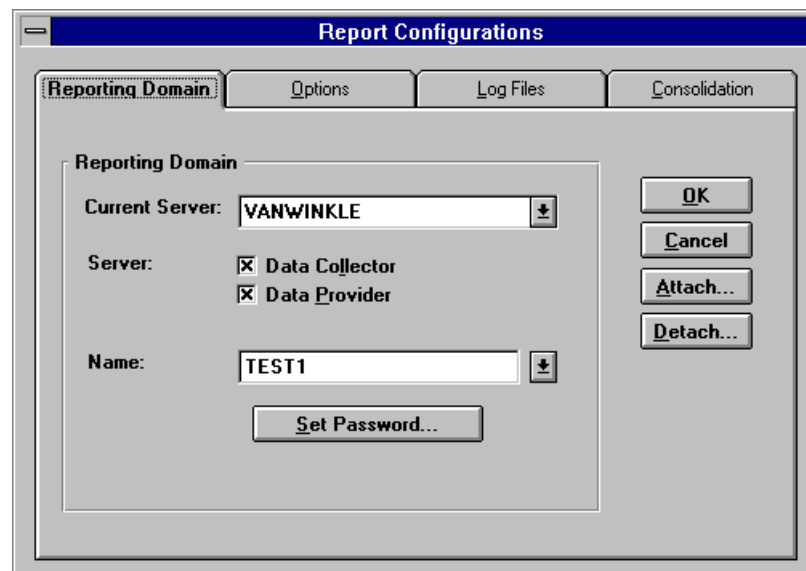


Figure 7-2: Report Configurations dialog box

This section explains all of these property sheets and how to use their options to set up the domains necessary for generating reports.

Having decided which servers will be in which domains across your enterprise, use the following procedure to set up reporting domains.

1. Choose Configure | Reporting.

The Report Configurations dialog box is displayed.

2. Select the Reporting Domain property sheet.

This property sheet displays your current server. The options that you set from this property sheet will apply to this server. If you want to change your current server, select one from the list box or use the Attach option to attach to a different server.

3. Select either the data collector or data provider option.

Use the following guidelines in making your selection:

- If you want this server to be the collection point for this reporting domain, select Collector. It is recommended that a Collector be both a provider and collector, enabling it to collect local data to its global database.
- If you want this server to give data to another server in the domain, select Provider.
- If you want this server to both collect data and have its data as part of the domain, select both Collector and Provider. A server which is a collector can be selected as a provider also. This will assure that the data for this server will also reside in the global database for the domain.

4. Specify the report domain name.

If you assigned the server as a data collector, the Name drop-down list box lists the currently visible domains. These are listed for your reference only. Because there can only be one data collector per domain, you should specify a new name in the text box. When you choose Data Collector, the Set Password option is enabled.

If you assigned the server as a data provider, the Name drop-down list box contains the same list. Because you can have more than one data provider in a domain, you can select a name from the list. The Set Password option is not enabled when Data Provider is selected.

5. Choose Set Password.

The Password dialog box is displayed.

6. Enter the desired password in the text box.

If the server is a data collector, you are prompted to enter a new password and then verify the password by retyping it.

If the server is a data provider, you will be prompted to enter the password for the selected domain when you have finished report configurations by choosing OK. The password you enter is then verified by the data collector specified by the reporting domain. You are notified if the password is incorrect.

Note: A data collector and a data provider in the same domain must have the same domain password in order to conduct a data transaction.

7. Select the Log Files property sheet.

This Log Files property sheet is displayed.

The screenshot shows the 'Report Configurations' dialog box with the 'Log Files' tab selected. The 'Provider Log Files' section has 'Maximum Size' set to 5 MB and 'Alert at' set to 0 % Full. The 'Collector Log Files' section has 'Maximum Size' set to 25 MB and 'Alert at' set to 25 % Full. 'OK' and 'Cancel' buttons are visible on the right side of the dialog.

Figure 7-3: Log Files property sheet in the Report Configurations dialog box

8. Set the Maximum Size using the spin control.

This value indicates the maximum size of the local and global databases and is stored in the local server configuration database. The Provider log files maximum size default is 5 MB; the Collector log files default is 25 MB.

9. Set the Alert at percentage.

This value will trigger the alert when the logging databases are x% their allowed maximum size. The alerts type will be as specified in the Alerting Options property sheet. Both the Provider and Collector log files "Alert at" default is 90%.

10. Select the Options property sheet.

The Options property sheet allows you to specify how often the data collectors should gather information and to specify the alerting options.

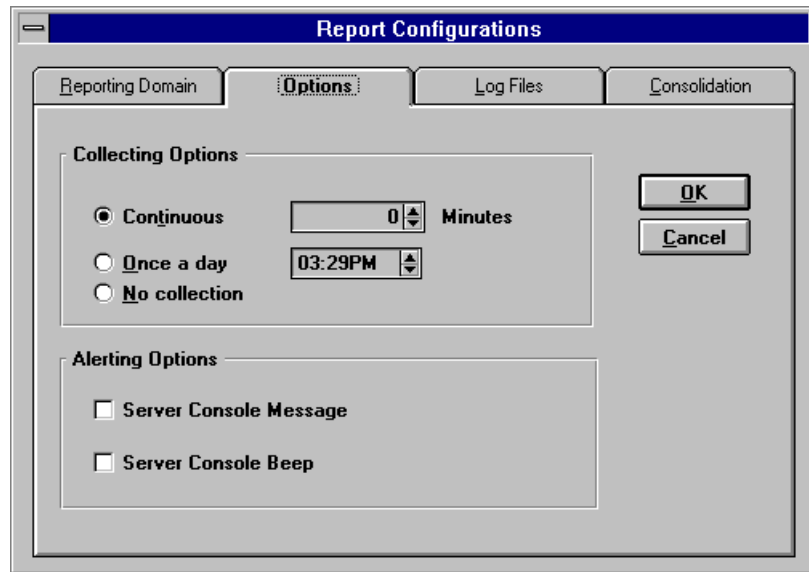


Figure 7-4: Options property sheet in the Report Configurations dialog box

11. Select the desired collecting options.

The following collection options are available:

- Continuous
- Once a day
- No collection

If you choose Continuous, the Minutes spin control is enabled. Use this spin box to specify in what intervals the data should be collected. The default is 5 minutes (i.e., the data collector would collect data every 5 minutes, continuously).

If you choose Once a day, use the time spin control to specify when the collection should start. The default is your current time.

If you choose No collection, the collection process is turned off for this domain.

12. Select the Server Console Message if desired.

This option enables alert messages to be displayed at the server console.

13. Select the Server Console Beep if desired.

This option enables all alert messages to be accompanied by a beep at the server console.

14. Choose OK to save your changes.

Consolidating Data for Reporting

Consolidation, the process by which the global databases from different domains (collectors) can be merged, is necessary for enterprise reporting. Consolidation also provides the means to merge databases from two physically separate locations.

Since data cannot cross a domain boundary until consolidation, all data must be consolidated before enterprise reports can be run.

In the example used in the previous section, consolidating the Sales Domain data into the Engineering Domain would add sales usage data into the engineering data. Then the Engineering Domain would have data for both the Sales and Engineering departments, and you could run reports based on this combined software activity data.

Use the following procedure to specify the consolidation options for the server domains. This procedure assumes you have accessed the Reporting Configurations dialog box.

1. Select the Consolidation property sheet.

The Consolidation property sheet displays your consolidation directory, which is the directory in which databases are placed so that they are consolidated. This field cannot be edited—it is provided for your reference only.

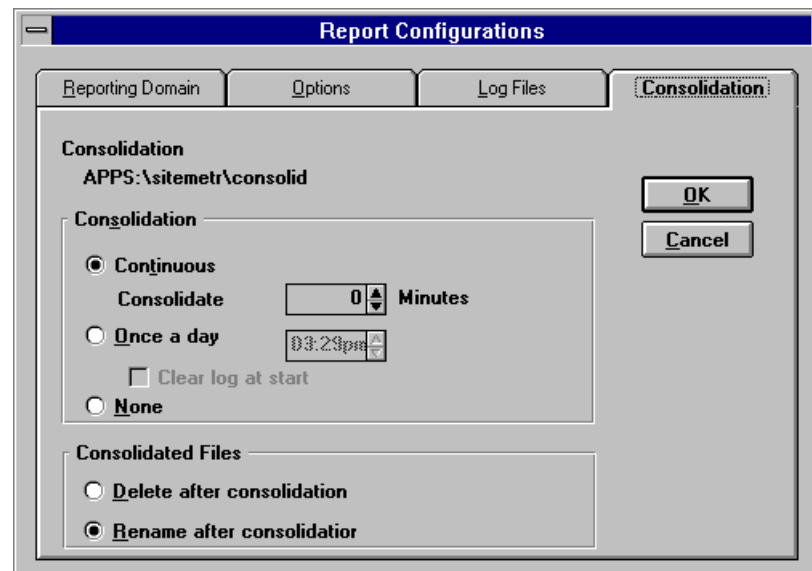


Figure 7-5: Consolidation property sheet in the Report Configurations dialog box

2. Specify how often consolidation should occur.

The property sheet offers the following options:

- Continuous
- Once a day
- None

If you choose Continuous, the Consolidate Minutes spin box is enabled. Use this spin box to specify in what intervals the data should be consolidated. The default is 15 minutes.

If you choose Once a day, the date spin control and the Clear log at start check box are enabled. Use the date spin control to specify when the consolidation should start if there are any databases in the consolidation directory. The default is your current time. A consolidation activity log is kept as a text file in the consolidation directory. If you want the log to be cleared when the consolidation process is started, select the Clear log at start option.

If you choose None, the consolidation process is disabled for this collector.

3. Specify what should be done with database files after they have been consolidated.

You can either delete or rename the files after consolidation. If you choose to delete the files, the database files are simply removed from the consolidation directory. If you choose to rename them, the database files are renamed with the EAT extension. For example, if one of the database files is SVRMCAFE.DAT before consolidation, it is renamed to SVRMCAFE.EAT after consolidation.

4. Choose OK.

Preparing Data for Consolidation

To consolidate the global databases from two or more collectors into one “master” collector you must prepare the global databases first. The preparation process creates prepared databases that can be manually copied into the consolidation directory of the “master” collector. The “master” collector automatically reads any prepared databases it finds in its consolidation directory and adds the data to its global databases. Once all prepared databases have been provided, the global databases contain data from multiple domains.

Therefore, consolidation enables multi-server report generation by merging global databases from two or more reporting domains.

Use the following procedure to consolidate the global databases from one reporting domain into another. Using A and B as example reporting domains, these steps prepare the global databases on the collector in Domain A. Then this data can be copied into Domain B.

1. Choose Configure | Prepare Report Data.

The Prepare Data for Consolidation dialog box is displayed.

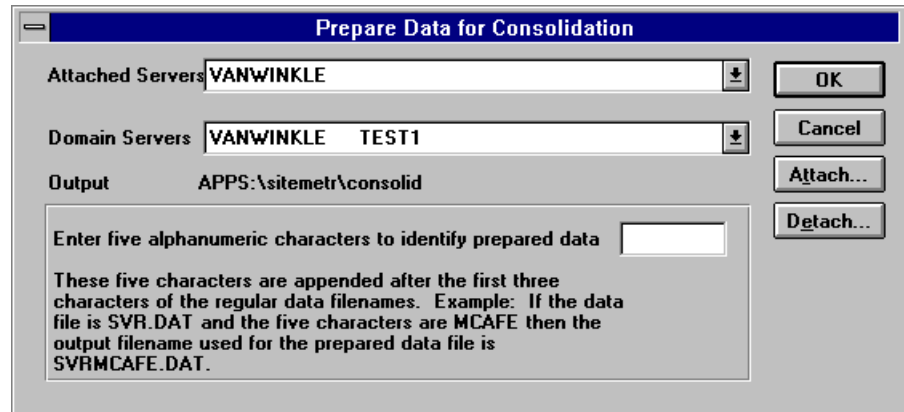


Figure 7-6: Prepare Data for Consolidation dialog box

This dialog box indicates what form the output of the consolidation will take.

2. Select the domain from the drop-down list box.

The list box displays the collector server followed by the associated domain name.

3. Type 5 alphanumeric characters to identify the prepared data in the text box.

As explained in the dialog box, these 5 digits are a prefix to the first 3 characters of the regular data filenames. For example, if the data file is SVR.DAT and the 5 characters are MCAFE, then the output filename used for the prepared data file is MCAFESVR.DAT.

4. Choose OK.

A Begin Preparation Process dialog box is displayed with the message saying “The data files will now be prepared remotely by the data collector and placed in the output directory. You will be notified when the prepared process has been completed. The prepared data files may then be moved from the output directory.”

5. Choose OK to proceed.

A notification message box will appear when the data consolidation is complete.

6. Copy the prepared data.

After completion, the prepared data can now be copied to the consolidation directory of the Collector in Domain B. The Collector in Domain B will automatically detect the prepared databases in its consolidation directory and

process them. Any reports now run from the Domain B Collector “Master Collector” will contain data from both domains.

Use these steps to prepare and consolidate data for all your file servers to run reports on software usage activity across your enterprise.

Using Predefined Report Style Sheets

Use the following procedure to generate a report.

1. Choose Reports | Choose Report.

The Choose Report dialog box is displayed.

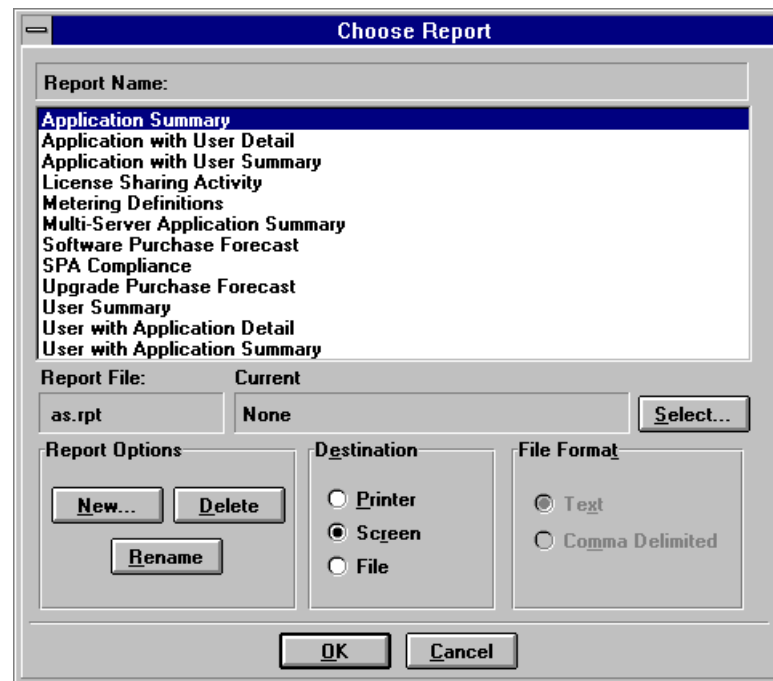


Figure 7-7: Choose Report dialog box

This window contains the following information:

- Report Name
- Report File
- Current Selection
- Report Options

- Report Destination
- File Format

The following steps describe the functionality of each of these.

2. Select the report you want to generate from the list of Report Names.

Your selection is highlighted. The default selection is the first report name in the list.

- 3 Select the report's Destination.

The following destinations are available:

Destination	Description
Printer	Sends the report to the printer and uses the currently defined Printer Set-up parameters.
Screen	Sends the report to a dialog box on your screen. Use the scroll bars to navigate through the report contents. Double click on the control menu button to close the dialog when you are finished.
File	<p>Sends the report to a file. When this option is selected, the File Format options become available. The format options are:</p> <ul style="list-style-type: none"> - Text- output is saved in ASCII format. - Comma Delimited - output is saved in a comma delimited format in which commas are used to separate the fields.

4. Choose OK to initiate report creation.

Once the report is complete, it is displayed in a report window which has extensive navigation options.

If the report is being sent to a file, you are prompted to enter a file name. Enter the file name and destination and choose OK. The Printing dialog box displays even if the report is being sent to a file.

If the report is sent to the screen, the resulting report displays in the Crystal Reports dialog box. Refer to the section "The Report Window" later in this chapter for more information about the report on the screen.

Selecting Domains and Servers for Reports

SiteMeter allows you to generate reports on selected domains and servers to customize your reports for your specific needs. Simply specify the filters and selections in the Report Selections dialog box to tailor your reports as desired.

Note: In order to perform the following procedures, you must be running SiteMeter from a file server which is set up as a collector.

Use the following procedure to select domains for the report you are generating.

1. From the Choose Reports dialog box, select a report and then choose Select.

The Report Selections dialog box is displayed.

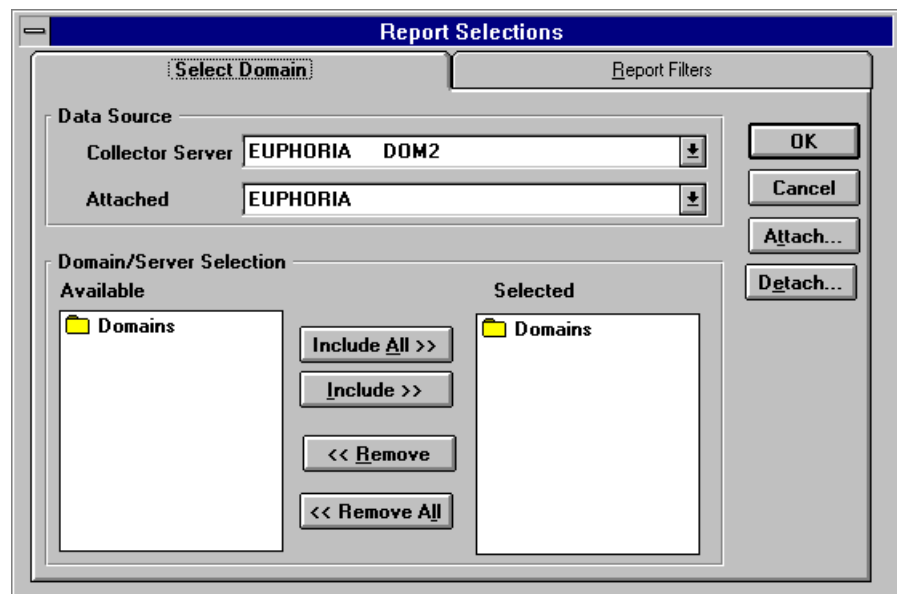


Figure 7-8: Select Domain property sheet in the Report Selections dialog box

2. Select the Select Domain property sheet.
3. Select a Collector Server from the drop-down list box.

This drop-down list contains the visible domains. If you are not already attached to the server that is the collector for the domain, the Attach to Server dialog box is displayed.

4. Select the desired domain from the Available list.

This list indicates all the servers that are found in the global databases of the collector for the specified domain.

5. Choose Include.

Your selection is moved to the Selected list. Use Include All to transfer all the Available domains to the Selected list.

If you want to remove a domain from the Selected list, highlight it and choose Remove. Choosing Remove All transfers all domains in the Selected list to the Available list.

6. Select the Report Filters property sheet.

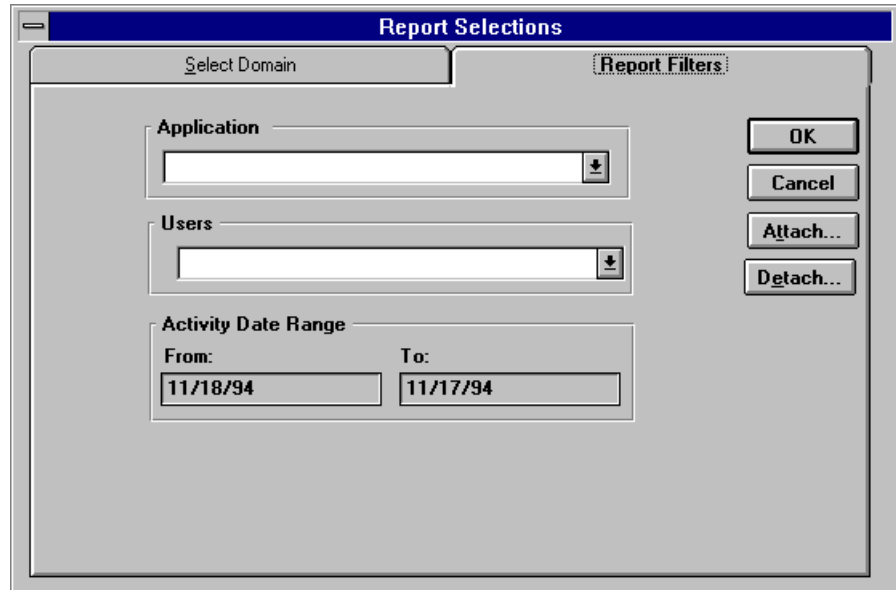


Figure 7-9: Report Filters property sheet in the Report Selections dialog box

7. Select the desired application from the Application drop-down list box.
8. Select the desired user from the Users drop-down list box.
Multiple users cannot be selected.
9. Specify From: and To: dates in the Activity Date Range text boxes.
The report will contain data only for the date range specified.
10. Choose OK to generate the selected report.

Adding New Reports

Additional reports can be incorporated into the SiteMeter system by using the Crystal Reports software.

Note: The Crystal Reports software is installed with SiteMeter. A Crystal Reports program icon is added to the McAfee Program Manager group. Procedures for using Crystal Reports are presented in the original install group.

You can run the Crystal Reports executable (CRW.EXE) by choosing Reports | Edit Reports.

Adding Reports

New reports created using the Crystal Reports software can be added into SiteMeter by using the following procedure. All report files (.RPT) must be located in the SITEMETR\CRYSTAL program directory.

1. Choose Reports | Choose Report.

The Choose Report dialog box displays.

2. Choose New.

The New Report dialog box is displayed.

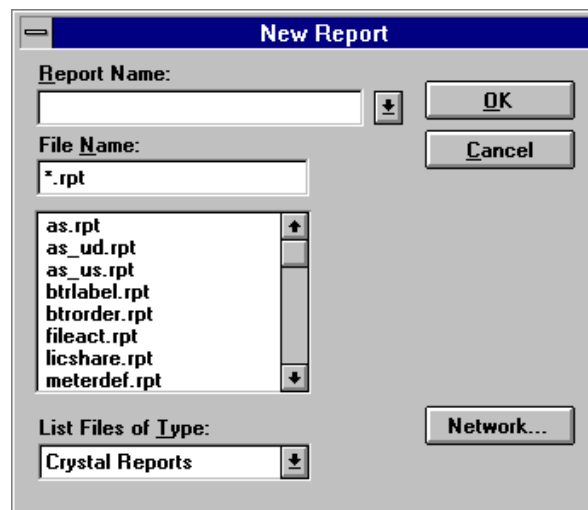


Figure 7-10: New Report dialog box

3. Enter the Report Name of the report to be added.

The name entered in this field is the name that will display in the Choose Report dialog box.

4. Select the File Name, and choose OK.

Select the .RPT file name to be added into SiteMeter. (The .RPT files that display are located in the SITEMETR\CRYSTAL program directory.) The selected file will be associated with the Report Name entered in the above step.

Renaming Added Reports

Use the following procedure to rename a Crystal report that has been added into SiteMeter.

1. Choose Reports | Choose Report.

The Choose Report dialog box displays.

2. From the list of Report Names, select the report to be renamed.
3. Choose Rename.

The Edit dialog box displays prompting you to enter a new report name.

4. Enter the new report name.
5. Choose OK to save changes and return to the Choose Reports dialog box.

The new report name displays in the Choose Report dialog box, and the old name is removed. All attributes of the old report are preserved in the renamed report (i.e., the report contents do not change).

Deleting Reports

Use the following procedure to delete a Crystal report that has been added into SiteMeter.

Note: A pre-defined SiteMeter report style sheet cannot be deleted; however, a report that was created using the Crystal Reports software and then added into SiteMeter can be removed.

1. Choose Reports | Choose Report.

The Choose Report dialog box displays.

2. From the list of Report Names, select the report to be deleted.
3. Choose Delete.

A prompt displays asking you to confirm the deletion.

4. Choose Yes to delete the report.

If deleted, the report name is removed from the Choose Report dialog box.

The Report Window

Once generated, SiteMeter reports are displayed in the Report Window, which is described in this section. This window allows you to navigate through the contents of your report.



Figure 7-11: The Report Window Buttons and Status Fields

The title bar displays the report type being generated. While the report is being generated on this window, a ribbon of buttons is displayed on the bottom of the window.

- The two left-most buttons are arrows pointing to the left. The left-most sends you to the beginning of the report; the other, to the previous page.
- The next two buttons are arrows pointing right. The first goes to the next page; the other, to the end of the report.
- The fifth button is the Cancel button.
- The sixth button is the page view (choose this button to change your zoom level for viewing the report).
- The seventh button is the print button which prints the report to your default printer.
- The eighth button is the export button which exports the report to a spread sheet or text file.
- The next button is the export button which exports the data to report using cc:Mail VIM format.
- The last button is the Close button which closes the window.

Report Types

SiteMeter's reporting feature offers a number of different report types for application usage and software security information. Choose the report type best suited to your business and decision-making needs.

The following report types are offered:

- Application Summary
- Application with User Detail
- Application with User Summary
- License Sharing Activity
- Metering Definitions
- Multi-Server Application Summary
- Software Purchase Forecast
- SPA Compliance
- Upgrade Purchase Forecast
- User Summary
- User with Application Detail
- User with Application Summary

The contents of each report type are described in the following sections of the manual.

Application Summary

The Application Summary report provides a summary of all the activity for each metered application. From this report, a user can get an overview of activity for each metered application.

The report heading details:

- Date of report generation
- Report type
- Date range for which report was generated
- The server on which the report was generated

The report provides the following details about each application:

- File name being metered
- Metered application name
- Number of licenses available
- Peak number of concurrent users
- Peak number of queued users
- Total number of users
- Total usage time
- VIP Usage
- Total queued users

This report also provides a grand summary of each of the above categories for all the applications included in the report.

Application with User Detail

The Application with User Detail report provides detailed information about a user's activity for each metered application. For example, this report details when a user accessed an application and for how long he or she used it.

The report heading details:

- Date of report generation
- Report type
- Date range for which report was generated
- The server on which the report was generated

The report provides the following information for each application included in the report:

- Metered application name
- File name being metered
- Number of licenses available
- Peak number of concurrent users
- Peak number of queued users
- Total number of users
- Total usage time

- Total queued users

Beneath all of the above information about each application, the following detailed information is provided about each user who used the application:

- Connect Date
- Connect Time
- Release Date
- Release Time
- User Name
- Status

Note: The above information is provided each time a user accesses the application.

Application with User Summary

The Application with User Summary report provides a summary of all the activity for each metered application, as well as an overview of a network user's use of each metered application.

The report heading details:

- Date of report generation
- Report type
- Date range for which report was generated
- The server on which the report was generated

The report provides the following information for each application included in the report:

- Metered application name
- File name being metered
- Number of licenses available
- Peak number of concurrent users
- Peak number of queued users
- Total number of users
- Total usage time
- Total queued users

Beneath all of the above information about each application, the following summary information is provided about each user who used the application:

- User name
- Total usage
- Total usage time
- Total number of times queued

Metering Definitions

The Metering Definitions report provides the network manager with a listing of all the applications currently being metered. For each application, it also provides the number of licenses, whether or not it is password-protected, and any other definitions specific to this application.

The report heading details:

- Date of report generation
- Report type (i.e., Metering Definitions, etc.)

The report provides the following information about each application:

- Metered application name
- File name being metered
- Number of licenses available
- License threshold count
- Minimum license count
- Length of the queue back time
- Whether or not a password is required for this metered application

Software Purchase Forecast

The Software Purchase Forecast report recommends software purchases for metered applications based on user activity and the perceived user need as indicated by the number of queued users.

The report heading details:

- Date of report generation
- Report type

- The server on which the report was generated

The report provides the following information about each application on which the report was generated:

- Metered application name
- File name
- Number of licenses installed
- Peak queued users
- 10% Surplus Recommendation (purchase required to accommodate the current need plus a 10% increase)
- 20% Surplus Recommendation (purchase required to accommodate the current need plus a 20% increase)

SPA Compliance

The SPA Compliance report is accepted by the Software Publisher's Association in conjunction with software purchase records as proof of software license compliance in networked environments.

The report heading details:

- Date of report generation
- Report type
- The server on which the report was generated

The report provides the following information about metered applications:

- Metered application name
- File name
- Number of licenses available
- Peak queued users
- Peak usage

Upgrade Purchase Forecast

The Upgrade Purchase Forecast report recommends software upgrades for metered applications based on user activity and the perceived user need as indicated by the number of queued users.

The report heading details:

- Date of report generation
- Report type
- Date Range
- The server on which the report was generated

The report provides the following information about each application on which the report was generated:

- Metered application name
- File name
- Number of licenses installed
- Peak usage
- 10% Surplus Recommendation (purchase required to accommodate the current need plus a 10% increase)
- 20% Surplus Recommendation (purchase required to accommodate the current need plus a 20% increase)

User Summary

The User Summary report provides the network manager with a listing of all the users who used metered applications. It offers crucial information, such as the number of times a user was queued and the total usage time.

The report heading details:

- Date of report generation
- Report type
- Date range for which report was generated
- The server on which the report was generated

The report provides the following information about each user on which the report was generated:

- User name
- Total usage
- Total usage time
- Total Queued
- Total Denied

- VIP Usage

This report also provides a grand summary for each of the above categories for each user included in the report.

User with Application Detail

The User with Application Detail report provides information about each time a user accessed a metered application.

The report heading details:

- Date of report generation
- Report type
- Date range for which report was generated
- The server on which the report was generated

The report provides the following information about each server on which the report was generated:

- User name
- Total Usage
- Total usage time
- Total Queued
- VIP Usage

Beneath all of the above information about each user, the following detailed information is provided about each application this user used:

- Connect Date
- Connect Time
- Release Date
- Release Time
- Usage Time
- Application
- Status

Note: The above information is provided for each time the user accessed an application.

User with Application Summary

The User with Application Summary report provides summarized information for each metered application that a user used.

The report heading details:

- Date of report generation
- Report type
- Date range for which report was generated
- The server on which the report was generated

The report provides the following information about each user on which the report was generated:

- User name
- Total Usage
- Total Usage Time
- Total Queued

Beneath all of the above information about each user, the following summary information is provided about each application the user used:

- Filename
- Metered Application
- Defined Limit
- Total usage
- Total usage time
- Total Queued

Exporting Files

SiteMeter allows you to export Btrieve data to a standard database format.

Use the following procedure to export files.

1. Choose File | Export Meter Log.

The Export dialog box is displayed.

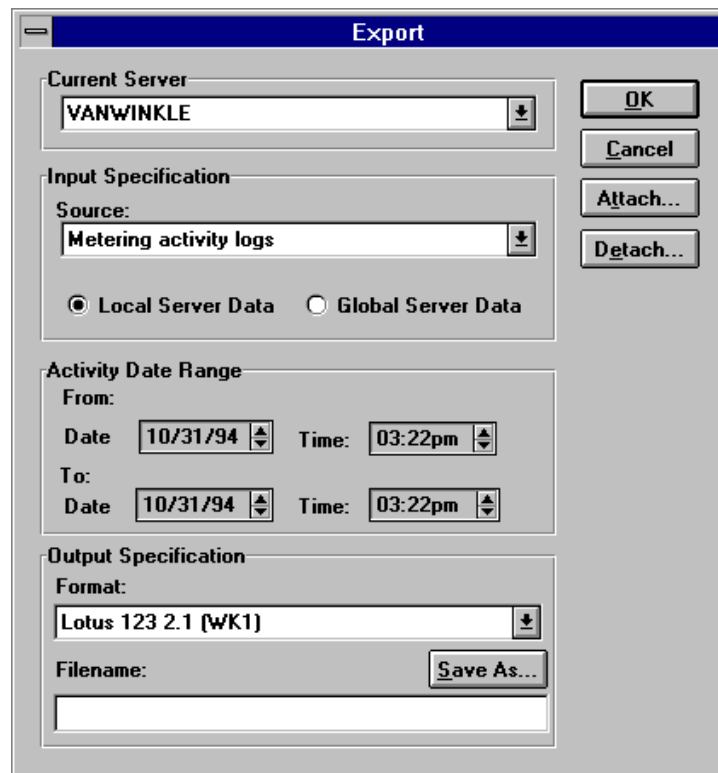


Figure 7-12: Export dialog box

2. From the Current Server list box, specify the server from which you want to export the Btrieve file.

The current server is displayed automatically in the list box.

You can also attach to and detach from different file servers. Choose the Attach button to attach to another file server. Refer to the section “Attaching to and Detaching from File Servers” in Chapter 3, “Getting Started” for more information.

3. Select one of the options from the Source list box.

The two options are

- Metering Activity Logs
- License Sharing Activity Logs

4. Specify a date range.

You can select an activity date and time range to specify which data should be included in the report. Use the spin controls to set the date and time.

The date and time are set automatically to export a log data file. If you want to export a portion of the log data, then specify a date range.

5. Choose the format for the exported data from the Format list box.

The available formats include:

- ASCII (CSV) (commadelimiter-minimal quoting/no guessing)
- ASCII (ISV) (comma delimiter-guess numeric values)
- ASCII (QSV) (comma delimiter-strings quoted/no guessing)
- ASCII (TAB) (tab delimiter)
- ASCII (TXT) (tab delimiter-guess numeric values)
- Data Interchange Format (DIF)
- dBase II (DBF2)
- dBase III (DBF3)
- dBase III Plus (DBF3PLUS)
- dBase IV (DBF4)
- Excel 2.0 (XLS2)
- Excel 3.0 (XLS3)
- Excel 4.0 (XLS4)
- Lotus 123 1.x (WKS)
- Lotus 123 2.1 (WKS)
- Lotus 123 3.x (WK3)
- Quattro (WKQ)
- Symphony 1.0 (WRK)
- Symphony 1.1-2.2 (WR1)

6. Specify the file name for the new format.

Enter the desired file name in the Filename text box or choose Save As. Choosing Save As produces the standard Windows Save As dialog box. Once you specify the File name and choose OK, you are returned to the Export dialog box. The name you specified is displayed in the Filename text box.

7. Once you have specified all the above information, choose OK.

The Export Status dialog box is displayed.

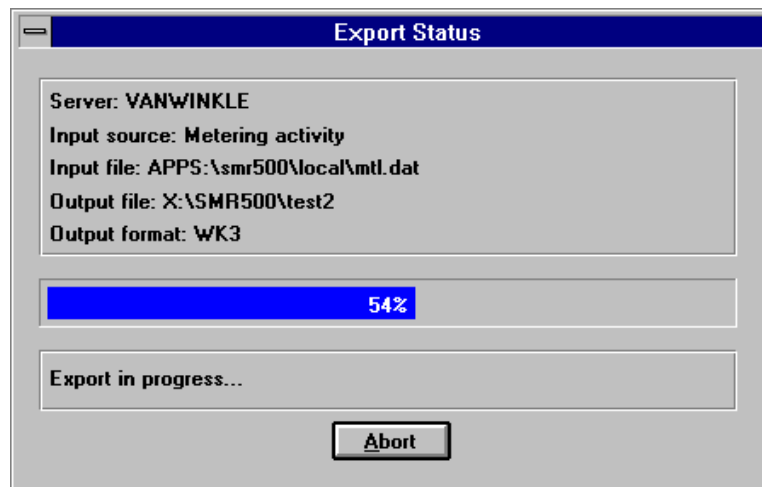


Figure 7-13: Export Status dialog box

This dialog box contains the following information:

Item	Description
Server	Indicates the server from which the data is being exported.
Input Source	Indicates whether the data being exported came from the metering log or the license sharing data log.
Input File	Indicates the file name: either MTL.DAT (metering log data file) or MSL.DAT (multi-server license sharing log data file).
Output File	Indicates the name of the file to which the data is being exported.
Output Format	Indicates in what format the exported data will appear.

The percentage complete bar tracks the progress of the exporting.

During the export, you can choose the Abort button to halt the exporting. Then choose Yes to abort the export process or No if you wish to continue.

Once the export is complete, control returns to the main menu. The output file is put into the current directory.

Appendix A SYSMOD

This appendix explains how to use SiteMeter's SYSMOD utility.

What is SYSMOD?

SYSMOD is a McAfee utility designed to help network administrators edit files. With SYSMOD, you can edit users' files without going from workstation to workstation to do so.

This utility is installed in the directories SITEMETR or BWORKS and PUBLIC. You can use SYSMOD if you prefer to edit your users' files manually.

Using SYSMOD

Use the following procedure to implement the SYSMOD program:

Make sure that the path to the .INI files is included as either a search drive in the case of users' Windows residing on the network or in the users' path statements located in their AUTOEXEC.BAT files for local Windows on the C: drive.

Example lines for login script:

```
Map ins s16:=SYS:\USER\%LOGIN_NAME\WINDOWS  
INCLUDE SYS:PUBLIC\SMRUSER.BAT
```

Example line for the SMRUSER.BAT using the INCLUDE command:

```
SYSMOD WIN.INI REPLACEKEY LOAD SWATCHER.COM SWATCHER.COM
```

Functionality

This section documents the SYSMOD program and its functionality.

All SYSMOD functions follow a basic format:

`SYSMOD <filename.ext>functionName parameter1...parameterN`

Below is a list of functions and their associated parameters. An example is also provided for each function. Note that when a parameter can be Null, it must still be entered, but use the NULL keyword. For example,

```
SYSMOD CONFIG.SYS ADDDEVICE C:\HIMEM.SYS NULL BEFORE
```

This would place the device= line at the beginning of the file. (See ADDDEVICE for details.)

The filename specified must exist; SYSMOD, however, will intelligently determine the location of the file for you. If you specify AUTOEXEC.BAT or CONFIG.SYS (with no path), SYSMOD will automatically look on your boot drive for the file. If you specify a filename with no path (e.g., SYSTEM.INI), SYSMOD will look in your path for the file. If you specify a full path to the file, SYSMOD will look in the explicit path for the file. If the file cannot be found, SYSMOD aborts with an error.

ADDDEVICE [DeviceToAdd][Key][Option]

This function adds a new DEVICE= line to a system file (typically the DOS CONFIG.SYS). Specify the path and driver name in the DeviceToAdd (e.g., C:\WINDOWS\EMM386.EXE). Specify a key value to search for in Key (e.g., HIMEM.SYS), and where to place DeviceToAdd BEFORE or AFTER Key in Option. For example:

```
SYSMOD CONFIG.SYS ADDDEVICE C:\WINDOWS\EMM386.EXE  
HIMEMSYS AFTER
```

would place a “device=c:\windows\emm386.exe” after the “device=himem.sys” line in the CONFIG.SYS. If Key is NULL or the key specified is not found, the device line is added at the beginning or end of the file.

ADDLINE [LineToAdd][Key][Option]

This function adds a line of text to a system file. Specify the entire line of text you wish to add in LineToAdd. Specify a reference key value in Key that you would like to position LineToAdd in reference to. Option (BEFORE or AFTER) specifies whether LineToAdd is placed BEFORE or AFTER Key. Again, if Key is NULL, then LineToAdd is placed at the beginning or the end of the file. For example,

```
SYSMOD AUTOEXEC.BAT ADDLINE C:\DOS\SMARTDRV NETX AFTER
```

would place a new line (c:\dos\smartdrv) after the line specifying netx (if found, otherwise it would go at the end of the file).

ADDPATH [PathKey][DirectoryKey][Option]

This function adds a subdirectory to a path environment variable. Specify the name of the path environment variable to edit (PATH for DOS, or DPATH for OS/2) in PathKey and the subdirectory to add in PathToAdd. DirectoryKey specifies the subdirectory that PathToAdd will be placed BEFORE or AFTER. Option is either BEFORE or AFTER. If DirectoryKey is a null string, ADDPATH will place PathToAdd at the beginning or end (respectively) of the path statement. If the key specified in PathKey is not found, then a new one is added, with a "SET" prepended. This allows for adding path like environment variables such as "SET TEMP=," and so on.

This function can also be used to edit other lines, such as a TEMP environment variable, or any other line similar to "SET envvar>=d:\path." For example,

```
SYSMOD AUTOEXEC.BAT PATH C:\WINDOWS C:\DOS BEFORE
```

would place c:\windows in the path statement before c:\dos. If c:\dos is not in the path, then c:\windows would be placed at the beginning of the path statement.

CFGSETSTRING [Key][NewValue]

This function sets a strong variable in a system file (e.g., STACKS 9,256, DOS=HIGH etc.). Specify the variable in Key and a string value to set in NewValue. For example,

```
SYSMOD CONFIG.SYS CFGSETSTRING STACKS 9,256
```

would set the value of the STACKS statement to 9,256.

REPLACEKEY [Key][DelKey][NewItem]

This function works like REPLACELINE, except that it replaces a key value rather than the entire line. Use Key to locate the line, DelKey is the key value to replace, and NewItem is the new value. The new value can be NULL, in which case DelKey will be removed. For instance:

```
SYSMOD WIN.INI REPLACEKEY LOAD SWINAPP.EXE SWATCHER.COM
```

would replace the SWINAPP.EXE reference in the load=line of the WIN.INI with SWATCHER.COM.

REPLACELINE [Key][NewLine]

This function replaces an existing line in a system file with a new line. Specify the key value of the line you wish to replace, such as PATH or COMSPEC (or DEVICE, for that matter) in Key. Specify the new value of the entire line in NewLine. If Parameter 2 is a null string, then the line will be deleted. For instance:

```
SYSMOD AUTOEXEC.BAT REPLACELINE COMSPEC NULL
```

would delete the existing COMSPEC line.

WRITEINISTR [SectionName][KeyName][NewValue]

This function mimics the Windows API function WritePrivateProfileString0. It expects the file you're modifying to be in the Windows INI file format. This function writes NewValue to the INI file under SectionName in KeyName. However, if SectionName doesn't exist, then a whole new section is added to the end of the INI file, with a new key=value added in that section. If the section was found, but the KeyName wasn't found, the new key value is added directly after SectionName. For instance:

```
SYSMOD SYSTEM.INI BOOT KEYBOARD.DRV BDIKBD.DRV
```

would change the existing keyboard.drv= entry in the [boot] section of the SYSTEM.INI to read keyboard.drv-bdikbd.drv.

Halting SYSMOD Updates

This section describes how to stop SYSMOD from updating users' files every time they log in.

To instruct SYSMOD to update a user's .ini file only once, add similar lines to the system login script:

```
MAP F:=SYS:USER\%LOGIN_NAME
#COMMAND /C SITE.BAT
MAP DEL F:
```

where SITE.BAT is a .bat file with the following lines:

```
if exist f:sitedone.doc goto end
call smruser.bat
copy sitedone.doc f:
:end
```

where SITEDONE.DOC is a dummy text file that = 'sysmod has already run.'

This code creates a flag that indicates if sysmod has already run. SYSMOD will see this and not run.

Appendix B Troubleshooting

This appendix provides a listing of SiteMeter's error messages and their explanations as well as common troubleshooting tips.

Error Messages

The following error messages may display while using SiteMeter.

A domain name must be entered for this server.

Enter a domain name in the appropriate text box and try again.

A print destination must be chosen.

Please select a printer in the printer setup dialog box to run a report.

A server must be selected.

Please specify a server in the Choose Reports dialog box to run a report.

A source file must be indicated.

Please specify an input source in the Choose Reports dialog box to run a report.

A unique suffix for the consolidated files was not entered!

Please enter a unique suffix for the specified consolidated file.

A valid date range must be provided.

Please specify a date range for filter criteria in the reports dialog box to run a report.

Are you sure you want to export the data?

Choose Yes to continue with the export of the data file.

Client server communication has failed. Unable to verify password.

Ensure that both the SITEMETR.NLM and the SMRPT.NLM are loaded. Also ensure that the TLI_SPX.DLL and the TLI_WIN.NLM are located in the same directory as the SITEMETR.NLM.

Confirm deletion of the report!

Choose Yes to confirm the deletion of this report, choose No to cancel.

Connection x invalid. Freeing task buffers.

A new user has logged onto a connection upon which locksets were granted for the previous user. These locksets or tasks will now become free and made available to other users.

<database file> is damaged. One or more database files are damaged and need to be recovered.

The SITEMETR.NLM has detected that the specified database file(s) are damaged. To repair, use BUTIL -RECOVER.

Error 31

Unable to locate log file "SYS:\SYSTEM\SITEMETR\SITEDATA" because the file does not exist or SiteMeter 4.X was installed incorrectly. Migration will continue without migrating log data.

SiteMeter will in fact install correctly, however, no information will be migrated from previous releases.

Error 212

Activity Connecting - Argument - DPAPI.GUV cannot connect to the database.

To address this error, reinstall SiteMeter and ensure that the user has rights and a sufficient amount of disk space to write to the public file. DBAPI.GUV is a hidden file that is written to the public directory of the destination server. This file shows the path to the database files for SiteMeter.

Error 412

Setup is unable to copy the installation support file *.lib to a temporary location. Make more space available and try again.

Ensure that you have a sufficient amount of temporary space available for installation—approximately, 2.1MB is required.

Error in report filters selections. Please try making your selection again.

Ensure that all required information has been provided in the Report Selections dialog box.

Extension file is too long. Some will be ignored.

The SITEMETR.EXT file is too large; remove some entries.

Failed to copy the report file to the database directory. Unable to continue report generation.

Ensure that you are mapped to the desired volume and file server.

For the selected configuration to take effect, please press the OK button now.

Choose OK to confirm the configuration.

Initialization failed. The NLM has not been loaded.

This message is displayed if the NLM cannot be loaded. The actual cause would have already been displayed as a different message.

Invalid user name supplied.

Please specify a valid user name in the Attach dialog box.

Low on memory. Please close some applications, and try again.

To increase memory, close out unneeded files minimized on your desktop.

<NLM1> is being used by <NLM2> and cannot be unloaded. To unload <NLM1>, <NLM2> must first be unloaded.

In the actual error message, <NLM> is replaced by whatever NLM the user tried to unload and NLM2 is replaced by whatever NLM is using NLM1. For example, if the user tried to unload the BTRIEVE.NLM, the message would say "BTRIEVE.NLM is being used..." and "To unload BTRIEVE.NLM...". The message means that the user attempted to unload an NLM that NLM2 needs. Therefore, NLM2 must be unloaded before the specified NLM can be unloaded.

No additional servers can be found.

SiteMeter cannot detect additional servers.

No extensions found.

No entries were found in the SITEMETR.EXT file.

No password was entered. Please try again.

Please enter a password in the Password Confirmation dialog box.

No supported protocols found.

Neither IPX nor APPLETALK protocols can be found loaded on the file server.

Password Encryption Failed. Please check to see that you have the right version of file BWSCOMM.DLL.

Call McAfee Technical Support for assistance at (408) 988-3832 to confirm the correct version of the specified DLL.

Please ensure that the metering and reporting Netware Loadable Modules are loaded for the selected configurations to take effect.

Ensure that the SMRPT.NLM is loaded on the current file server.

Please enter a domain name for the selected server.

Please enter a domain name in the appropriate text box.

Please enter a report name.

Please enter a report name in the appropriate text box.

Please select or enter a server name before pressing the OK pushbutton.

Please specify a server in the attach or detach dialog box.

Resource Allocation Failed! Low on memory.

To increase memory, close out unneeded files minimized on your desktop.

Report name was not entered. Please enter a report name.

Please enter a report name in the appropriate text box.

Report setup choices incomplete.

All selections necessary to run reports have not been made in the reports dialog box.

Reporting domain was not configured. Please configure reporting domain.

From the SiteMeter console, choose Configure | Reporting. The Report Configurations dialog box is displayed. Ensure that all required information has been entered for desired domain.

Selected domain was not found!

The domain name you have entered has already been used. Please enter a different domain name.

SMRPROXY: Error allocating resources

The SMRPROXY.NLM cannot initialize needed resources on the file server. Ensure that you have a sufficient amount of space on your file server.

SMRPROXY: Unable to initialize client tracking.

The SMRPROXY.NLM cannot hook into file system protocol stack. Ensure that the user is using a certified NetWare network driver.

SMRPROXY: Unable to initialize file tracking.

The SMRPROXY cannot hook into file system callback code. This error is usually caused by another user-loaded NLM which does not use Novell approved methods of hooking into the file system.

SMRPROXY: Unable to initialize queue.

The SMRPROXY.NLM cannot allocate memory for protocol packet queue.

SMRPROXY: Unable to initialize tasks.

The SMRPROXY.NLM cannot allocate memory for monitoring the NetWare connection table or for holding lockset information.

SMRPROXY: Packet Queue Full/Maxed Out.

Cannot allocate memory on file server for protocol packets.

SMRPROXY: Task List is Full.

Cannot allocate memory on file server for tracking a client lock request.

Task buffers increased from x to y.

The SMRPROXY.NLM needs to allocate more memory for metering applications (this is normal behavior and not a cause for alarm).

The global database is not available! To run global reports please ensure that the SMRRPT.NLM is loaded and that the reporting domains are configured. Do you want to run local reports?

Choose Yes to run a local report. Choose No to cancel requested report.

The password you have entered is not valid. Please try again.

Please enter the correct password in the appropriate text box.

The server was not specified as a provider or collector. At least one them must be checked.

Please choose one or both of the radio buttons identifying the server as a collector and/or a provider.

There must be at least one domain configured.

From the SiteMeter console, choose Configure | Reporting. The Report Configurations dialog box is displayed. Enter all required information to configure desired domain.

This option is not available at this time.

Ensure that the SMRRPT.NLM is loaded on the current file server. Ensure that you are running SiteMeter from a server which is configured as a collector.

This report cannot be deleted.

Selected report cannot be deleted as it is a pre-defined report.

This report cannot be renamed.

Selected report cannot be renamed as it is a pre-defined report.

Unable to allocate more tasks buffers.

The SMRPROXY.NLM is unable to allocate more memory for metering applications.

Unable to connect to the database.

The DBAPI.GUV file in SYS:PUBLIC tells the SITEMETR.NLM where to find its databases. If the DBAPI.GUV file contains the line: SITEMETER500=SYS:\SITEMETR\LOCAL\FILES.CFG then the SMRRPT.NLM databases are in SYS:\SITEMETR\LOCAL. This message will display if FILES.CFG cannot be found or is damaged. To address this, copy a new FILES.CFG from SYS:\SITEMETR\TEMPLATE into SYS:\SITEMETR\LOCAL.

Unable to establish connection with DataLIB DLL. Cannot continue.

Ensure that the file DLWBC31.DLL is in the same directory as SITEMETER.EXE and that SITEDATA or VIRUSDTA are in the directory you have selected. If they are in the directory and you are still receiving an error message, call McAfee Technical Support for assistance at (408) 988-3832.

Unable to initialize Btrieve DLL file.

Ensure that the files WBTRCALL.DLL and WBHANDLE.DLL are in the same directory as SITEMETER.EXE. Refer to Appendix C for further information about setting up BTRIEVE.

Unable to initialize DataLIB DLL; export functions will be unreliable.

Ensure that the file DLWBC31.DLL is in same directory as SITEMETER.EXE.

Unable to load BTRIEVE.NLM**Unable to load BSPXCOM.NLM**

These messages will display if the <NLM>.NLM cannot load Btrieve. Btrieve must be installed on the server.

Unable to open extension file.

The SMRPROXY.NLM was unable to open the SITEMETR.EXT file to find file extensions for DOS and OS/2 files.

Unable to open input file. Cannot continue.

Ensure that the input files MTL.DAT, MSL.DAT or VRL.DAT are in the directory you have selected.

Unable to open output file. Cannot continue.

Ensure that the file DLWBC31.DLL is in the same directory as SITEMETER.EXE.

Unable to connect to the database

The DBAPI.GUV file in SYS:PUBLIC tells the SITEMETR.NLM where to find its databases. If the DBAPI.GUV file contains the line:SITEMETER%))=SYS:\SITEMETR\LOCAL\FILES.CFG then the SITEMETR.NLM databases are in SYS:SITEMETR\LOCAL. This message will display if FILES.CFG cannot be found or is damaged. To address this, copy a new FILES.CFG from SYS:\SITEMETR\TEMPLATE into SYS:\SITEMETR\LOCAL.

Unable to create Btrieve output file. File may be in use.

The Btrieve data output file with extension .DAT may already be in use by another user. Ensure that no one else is using the file and try again. If the problem still persists, please use the Btrieve utility provided by NetWare. Type BUTIL -RESET filename.DAT.

Unable to initialize Btrieve requester.

Btrieve requester BREQUEST may not be running. Exit windows and run BREQUEST.EXE.

Unable to initialize controls. Please ensure that the file TREECTRL.DLL is in the current directory.

Through Windows or a DOS prompt, ensure that the specified file is located in your current directory.

Unable to insert Btrieve record.

Btrieve was unable to insert one of the records in the export process. The original file may be corrupted, please call McAfee Technical Support at (408) 988-3832.

Unable to load the SITEMETR.MSG message file. Default messages are being used.

The SITEMETR.NLM cannot locate the SITEMETR.MSG message file of customizable messages. This file is located in the same place SiteMeter was installed.

Unable to locate the SYS:PUBLIC\DBAPI.GUV database control file."

The DBAPI.GUV is used by the SITEMETR.NLM so that it can find its databases. If this file has been accidentally deleted, it can be recreated. DBAPI.GUV is a standard ASCII file and any text editor can be used. For example, if SiteMeter 5.0 was installed in SYS:SITEMETR, then the DBAPI.GUV file in SYS:PUBLIC should contain the line: SITEMETER50=SYS:\SITEMETR\LOCAL\FILES.CFG

Unable to open report. Please ensure that the report file exists.

Ensure that the report name entered is the correct name and that the file exists.

Using default extensions.

This message indicates that the SMRPROXY.NLM is having problems reading the extensions located in the SITEMETR.EXT file and the default hardcoded extension(s) will be used for DOS and OS/2 metering.

When 'File' is the print destination, a file type must be selected.

Please specify an output file name to print the specified report to a file.

Workstation is not attached to the selected server! Please to attach to the server.

You can attach to the desired server by using the Attach feature located in most dialog boxes.

Workstation is unable to attach to the selected server.

Ensure that the selected server is running and that you have access to it.

Would you like to export new baseline source files for your report?

Choose Yes to continue with the export of the data files. Choose No if you have recently exported the data files. This will save some time in the report generation process.

You must unload<NLM>.NLM before you can down the server.

Ensure that all associated NLMs must be unloaded before the server can be shut down.

Install Troubleshooting

If you receive any errors while installing or upgrading SiteMeter, display the log file to view the errors and possible solutions.

Error calling DLL function. This indicates that install was unable to find PROGLIB.DLL or NETWARE.DRV didn't load or wasn't configured in your SYSTEM.INI file.

This could occur if the NetWare shell was not loaded before running Windows or if the wrong NetWare driver was loaded for Windows. Please refer to the installation requirements in this manual.

Also, make sure:

-The network shells are loaded.

-The following line is included in your SYSTEM.INI file in the [386Enh] section: network=*vnetbios, vnetware.386, vipx.386

-You have Write and Modify rights to your Windows directory.

If error occurs during an installation, and NWIPXSPX.DLL already exists in \SITEMETR, delete NWIPXSPX.DLL from the SiteMeter directory.

Install requires temporary storage on your hard drive, approximately 300K bytes. There is not enough space on your XXXX.

XXXX is the drive name specified. This message will display if the drive you specified does not contain the space required to run the installation program.

Unable to copy or decompress file: FILENAME. Make sure that you have permission to write to the designated path and that you included the drive letter and that there is enough space on the destination disk.

FILENAME is the file to be copied or decompressed. This message will display if : 1) you do not have the write permission, 2) there is not enough space on the destination disk, or 3) the volume (i.e., SYS) that the install is trying to write to does not exist. Log in as supervisor or equivalent. If is a map=rooted drive, re-map as a regular map drive.

Install did not find a previously installed copy of XXXXXX in YYYYYY. Choose OK to choose another path.

XXXXXX is the name of the product which you want to upgrade. YYYYYY is the name of the path you gave for the install to check for the previously installed product. This message will display if the install did not find the previously installed product which you want to upgrade in the path you specified. Make sure you give the correct path to the install to find the previously installed product for upgrading.

This installation failed. Please run the install again to be sure that SiteMeter is installed correctly. Choose OK to exit install and view the install log file.

This message will display when the installation has encountered severe problems and has aborted. A log file may have the error message. Use Windows Notepad utility to view this file. Make the required change and then run the install again.

Fatal Error: [Error #]

Verify that you meet the SiteMeter configuration requirements and then contact McAfee Technical Support with the Error #.

Install detected problems with your Configuration. Click on OK to exit and view log file.

View the log file for information to correct your configuration in accordance with the SiteMeter installation requirements. Once you have corrected your configuration, run the installation process again.

Unrecoverable Error

Verify that you meet the SiteMeter configuration requirements, and then contact McAfee Technical Support with the Error #.

Appendix C Using Brequest

This appendix discusses the use and configuration of the server-based Btrieve record manager, BREQUEST and provides a listing of the status codes.

Using the Btrieve NLM

The Btrieve record manager must be loaded before running the SiteMeter program. This appendix offers recommendations on setting up and using the Btrieve NLM.

Note: When using BREQUEST, version 6.10 or greater is required.

When using BREQUEST, BTRIEVE, BSPXCOM and BROUTER must also be loaded on the file server. For details on loading these programs, refer to your Novell documentation.

You do not have to set up the BTRIEVE.NLM if SiteMeter is the only NLM you are using that requires Btrieve. Otherwise, SiteMeter will load Btrieve automatically with the proper settings.

Using the NLM

Use the following procedure to configure the Btrieve NLM.

Note: If NetWare for Macintosh is being used on the server, this loads Btrieve automatically. To enable the correct settings to be picked up, place BSTART before LOAD AFP in the AUTOEXEC.NCF file.

1. To configure the NLM, run BSETUP.NLM.

At the file server console prompt, type:

```
LOAD BSETUP <ENTER>
```

2. Choose Set Btrieve Configuration to verify that the following options are defined.

The values provided below are the minimum values required; your current values may be set higher.

- Number of Open Files: = 200 (default = 20)
- Number of Transactions: = 1 (default = 0)
- Largest Record Size: = 17000 (default = 8192)
- Largest Page Size: = 4096 (default = 4096)
- Number of Handles: = 1000

Note: All other BSETUP options can remain unchanged.

3. Save the configuration, and exit BSETUP.

BSETUP writes the configuration changes to the BSTART.NCF file. The changes do not take effect until the next time the Btrieve NLM is loaded.

4. To load the NLM, run BSTART.

At the file server console prompt, type:

```
BSTART <ENTER>
```

BSTART is an NCF file which loads both BTRIEVE.NLM and BSPXCOM.NLM.

5. To unload the Btrieve NLM, issue the BSTOP command.

If the Btrieve NLM was loaded when changes were made in BSETUP, you need to unload Btrieve and then reload the NLMs in order for the changes to take effect.

For example, at the console prompt, type:

```
BSTOP <ENTER>
```

```
BSTART <ENTER>
```

Using Brequest in a Login Script

Because the Btrieve database must be loaded prior to running SITEMETER.EXE, you must load the Btrieve requester (BREQUEST.EXE) at the workstation. you can use one of two methods to automate the process of loading the BREQUEST.EXE file at the workstation.

You can load BREQUEST from either a system or user login script, by simply adding the line listed below.

```
#BREQUEST.EXE/D:17000
```

You must have a map to the SYSTEM directory prior in the script and change to that drive before running BREQUEST.

You can also use a standard text editor to create a WINSTART.BAT file which will load BREQUEST automatically when starting Windows. Simply create the file, and add the load line for Brequest (listed above). Be sure to place the file in the directory from which you load Windows.

Note: Brequest must be loaded before you run Windows.

Please also note the following points:

- **Loading SPX** - SiteMeter requires SPX to be loaded at each workstation. Brequest communicates with BSPXCOM.NLM using SPX. BSPXCOM, in turn, passes all requests from Brequest to the BTRIEVE NLM. If SPX is not loaded at a workstation, that workstation has no communication whatsoever with the Btrieve record manager. If you have loaded Brequest and are getting "BTRIEVE Record Manager Not Loaded" messages, make sure that SPX is loaded. This normally only becomes an issue on workstations that load the ODI drivers because the ODI drivers can optionally load SPX.
- **Brequest /D switch** - The /D: parameter specifies the size of the "data message buffer length." This buffer refers to the maximum record size that the NLM will transmit to the workstation. This switch should be set to 17000 for the purposes of SiteMeter.
- **Brequest Error 87** - If you receive an "Error 87" from Btrieve while using Brequest, increase the 'Number Of Open Files' setting in BSETUP.

Btrieve Status Codes

Btrieve returns a status code after each operation an application performs. If the operation was successful, Btrieve returns status code 0. If the operation was not successful, Btrieve will return one of the nonzero status codes described in this section.

If Btrieve returns a code that is not contained in this section, refer to your Btrieve Installation and Operation Manual for error codes from the utilities.

01 INVALID OPERATION

The operation parameter specified in the call is invalid.

02 I/O ERROR

An error occurred during disk read/write. This status code indicates that the file has been damaged and must be recreated, or that the file specified on the open call was not created. This status code also occurs if the application passed an invalid position block.

03 FILE NOT OPEN

The operation cannot execute because the file is not open. A successful Open operation must be performed before Btrieve can process any other operations. This status code may also occur if the application passed an invalid position block for the file.

04 KEY VALUE NOT FOUND

The specified key value in the index path was not found.

05 DUPLICATE KEY VALUE

A record with a key field containing a duplicate key value cannot be added to an index that does not allow duplicate values.

06 INVALID KEY NUMBER

The value stored in the key number parameter was not valid for the file being accessed. The key number must correspond to one of the keys defined when the file was created or to a supplemental index.

07 DIFFERENT KEY NUMBER

The key number parameter changed before a Get Next, Get Next Extended, Get Previous, Get Previous Extended, Update, or Delete operation. The operation specified requires the same key number parameter as the previous operation because Btrieve uses positioning information relative to the previous key number.

If you need to change key numbers between consecutive Get Next, Get Next Extended, Get Previous, or Get Previous Extended operations, use a Get Position operation followed by a Get Direct operation to re-establish positioning for the new index path.

08 INVALID POSITIONING

The current position must be established to update or delete a record. Perform a Get or Step operation to establish the current position. This status code may also occur if the application passed an invalid position block for the file.

09 END-OF-FILE

The operation tried to read past the file boundaries (end-of-file or start-of-file). When reading a file in ascending order according to an index path, Btrieve returns the last record in that index path. When reading a file in descending order according to an index path, Btrieve returns the first record in the index path.

The Get Extended and Step Extended operations return this status code if the number of records satisfying the filtering condition is less than the number of specified records to be returned and the reject count has not been reached.

10 MODIFIABLE KEY VALUE ERROR

The operation tried to modify a key field which is defined as non-modifiable.

11 INVALID FILENAME

The filename specified does not conform to file naming conventions.

12 FILE NOT FOUND

The filename specified does not exist. Check the key buffer parameter to make sure the pathname is terminated with a blank or a binary zero.

13 EXTENDED FILE ERROR

Btrieve could not find the extension file for an extended file which the application tried to open. Extension files must be loaded on the logical disk drive specified when the extension was created. Both the primary file and its extension file must be on-line to access an extended file.

14 PRE-IMAGE OPEN ERROR

The pre-image file could not be created or opened. There are three possible causes for this error.

- Btrieve could not create a new pre-image file because your disk directory is full. Btrieve must be able to create a pre-image file.
- Btrieve could not open the pre-image file to restore file integrity. If the pre-image file was erased or damaged, Btrieve cannot restore the file's integrity. In this case, either use the RECOVER command in the BUTIL utility to retrieve the damaged file's data records in a sequential file, or replace the file with its most recent backup.
- Btrieve could not assign a handle to the pre-image file because the Btrieve was not started by a user with access rights to the pre-image file.

15 PRE-IMAGE I/O ERROR

An I/O error occurred during the pre-imaging function. Either the disk is full or the pre-image file is damaged.

- If the disk is full, erase any unnecessary files or extend the file to gain additional disk space.
- If the pre-image file is damaged, the integrity of the Btrieve file cannot be ensured. Either use the RECOVER command in the BUTIL utility to retrieve the damaged file's data records in a sequential file, or replace the file with its most recent backup.

16 EXPANSION ERROR

An error occurred while writing the directory structure to disk prior to the creation of the expanded file partition. Either Btrieve could not close the file, or a new page was added to the file and Btrieve could not close and reopen the file to update the directory structure. Check for a disk hardware failure.

17 CLOSE ERROR

An error occurred while writing the directory structure to disk prior to closing the file. Either Btrieve could not close the file, or a new page was added to the file and Btrieve could not close and reopen the file to update the directory structure. Check for a disk hardware failure. This status code also occurs if the application passed an invalid position block for the file.

18 DISK FULL

The disk is full and the file could not be expanded to accommodate the insertion. Either erase any unnecessary files or extend the file to gain additional disk space.

19 UNRECOVERABLE ERROR

An unrecoverable error has occurred. File integrity cannot be ensured. Either use the RECOVER command in the BUTIL utility to retrieve the damaged file's data records in a sequential file, or replace the Btrieve with its most recent backup.

20 RECORD MANAGER INACTIVE

A request has been made before the Record Manager has been started. Restart the Record Manager.

In network environments, the operation was not processed because BREQUEST was not loaded. Reload BREQUEST.

21 KEY BUFFER TOO SHORT

The key buffer parameter was not long enough to accommodate the key field for the index path requested. Verify that the length of the key buffer equals the defined length of the key specified in the key number parameter. This status code can be returned only by certain interfaces.

22 DATA BUFFER LENGTH

The data buffer parameter was not long enough to accommodate the length of the data record defined when the file was created. Verify that the length of the data buffer is at least as long as the file's defined record length.

- For *Get* or *Step* operations, if the data buffer is too short to contain the fixed length portion of the record, Btrieve does not return any data to the data buffer. If the record is a variable length record and the data buffer is too short to contain the entire variable length portion of the record, Btrieve returns as much data as it can and a status code 22, indicating that it could not return the entire record.
- For the *Insert* operation, Btrieve does not insert the record if the data buffer is shorter than the fixed length portion of the record.
- For the *Update* operation, if the data buffer is too short to contain the fixed length portion of any record, Btrieve does not update the record.
- For the *Create*, *Stat*, and *Create Supplemental Index* operations, a status code 22 indicates that the data buffer is not long enough to contain all the file and key specifications, and the alternate collating sequence definition, if specified.

23 POSITION BLOCK LENGTH

The position block parameter was not 128 bytes long. This error can only be detected using certain language interfaces.

24 PAGE SIZE ERROR

The page size was invalid. The page size must be a multiple of 512 bytes but must be no larger than 4096 bytes. To solve this, run or load BSETUP at the server. Change the page size to 4096 and the largest record size to 17000. See Appendix C for more information.

25 CREATE I/O ERROR

The file specified could not be created. Possible causes are a full disk directory or a full disk. If you are creating a file over an existing file, Btrieve returns this status code if the existing file is open or the operating system does not allow the creation for some other reason (for example, a NetWare file is flagged transactional).

26 NUMBER OF KEYS

The number of keys specified for the page size was invalid. For standard Btrieve files with a page size of 512 bytes, the number of key segments must be between 1 and 8. For larger page sizes, the number of key segments must be between 1 and 24. You must define at least one key without the null attribute.

27 INVALID KEY POSITION

The key field position specified exceeded the defined record length for the file. Either the key position was greater than the record length or the key position plus the key length exceeded the record length. For key-only files, the key must begin in the first byte of the record (position 1).

28 INVALID RECORD LENGTH

The record length was invalid. The record length specified (plus overhead for duplicates) must be less than or equal to the page size minus 6 or greater than or equal to 4 bytes long.

29 INVALID KEY LENGTH

The key length was invalid. The key length specified must be greater than zero and cannot exceed 255. The length of a binary key must be even. Btrieve requires that each key page in the file is large enough to hold at least eight keys.

If the page size is too small to accommodate eight occurrences of the specified key length (plus overhead), either increase the file's page size, or decrease the key length.

30 NOT A BTRIEVE FILE

The filename specified is not a valid Btrieve file. Either the file was not created by Btrieve, or it was created by an earlier version of Btrieve.

Another possibility is that the first page of the file, which contains the File Control Record, is damaged.

31 FILE ALREADY EXTENDED

The file specified has already been extended. A file can be extended only once.

32 EXTEND I/O ERROR

The file could not be extended. Possible causes are that the directory is full, the disk is full, or the disk is write protected.

34 INVALID EXTENSION NAME

The filename specified for the extended partition was invalid.

35 DIRECTORY ERROR

An error occurred while changing to the directory that contains the Btrieve file. Either the drive specified in the Get Directory operation does not exist or the pathname specified in a Set Directory operation was invalid.

36 TRANSACTION ERROR

A Begin Transaction operation could not be performed because no transactions were specified when the Btrieve was initialized.

37 TRANSACTION IS ACTIVE

A Begin Transaction was issued while another transaction was active at that station. Transactions cannot be nested.

38 TRANSACTION CONTROL FILE I/O ERROR

An error occurred when Btrieve tried to write to the transaction control file. Possible causes were that the disk was full, the disk was write protected, or the transaction control file (which was created when the Btrieve was loaded) was deleted.

39 END/ABORT TRANSACTION ERROR

An End or Abort Transaction operation was issued without a corresponding Begin Transaction operation.

40 TRANSACTION MAX FILES

The application tried to update more than the maximum number of files allowed within a transaction. The maximum number of different files that can be updated during a logical transaction is set when Btrieve is configured. Refer to your *Btrieve Installation and Operation manual* for more information on configuration.

41 OPERATION NOT ALLOWED

The application tried to perform an operation that is not allowed at this time. Some operations are not allowed under certain operating conditions. For example, Btrieve returns this status code if you attempt to perform a Step, Update, or Delete operation on a key-only file or a Get operation on a data only file.

Also, certain operations are prohibited during transactions because they have too great an effect on the pre-image file or on Btrieve's performance. These operations include Close, Set or Clear Owner, Extend, Create Supplemental Index, and Drop Supplemental Index.

42 INCOMPLETE ACCELERATED ACCESS

The application tried to open a file that was previously accessed in accelerated mode and never successfully closed. The file's integrity cannot be ensured. Either use the RECOVER command in the BUTIL utility to build a new file or restore the file using the latest backup.

43 INVALID RECORD ADDRESS

The record address specified for a Get Direct operation was invalid. The address is outside of the file's boundaries; it is not on a record boundary within a data page, or on a data page. The 4-byte address you specify for a Get Direct operation should be one that was obtained by a Get Position operation.

44 NULL KEY PATH

The application tried to use the Get Direct operation to establish an index path for a key whose value is null in the corresponding record. Btrieve cannot establish positioning based on a null key value.

45 INCONSISTENT KEY FLAGS

The key flags specification on a Create operation was inconsistent. If a key has multiple segments, the duplicate, modifiable, and null attributes should be the same for each segment in the key.

46 ACCESS TO FILE DENIED

The application opened a file in read-only mode and tried to perform an Update, Delete, or Insert on that file. Another possible cause is that the owner name required for updates was not specified correctly when you opened the file.

47 MAXIMUM OPEN FILES

The number of files opened in accelerated mode exceeded the number of buffers available in Btrieve's cache. When a file is opened in accelerated mode, Btrieve reserves one of its cache buffers for the file. Btrieve always reserves five empty buffers for index manipulation. Reconfigure the Btrieve Record Manager with a smaller page size parameter to allocate more buffers.

48 INVALID ALTERNATE SEQUENCE DEFINITION

The first byte of an alternate collating sequence definition (the identification byte) did not contain the hexadecimal value AC.

49 KEY TYPE ERROR

The application tried to create a file or a supplemental index with an invalid extended key type, or tried to assign an alternate collating sequence to a binary key or key segment. You can only assign an alternate collating sequence to a string, lstring, or zstring key type.

This status code is also returned if you define a supplemental index requiring an alternate collating sequence, and no alternate collating sequence definition exists either in the file or in the key definition passed in the data buffer.

50 OWNER ALREADY SET

The application tried to perform a Set Owner operation on a file that already has an owner. Use the Clear Owner operation to remove the previous owner before specifying a new one.

51 INVALID OWNER

There are two possible causes for this status code:

- If your application received this status code after a Set Owner operation, the owner names specified in the key buffer and data buffer did not match.
- If your application received this status code after an Open operation, the file you tried to open has an owner name assigned to it. Your application must specify the correct owner name in the data buffer.

52 ERROR WRITING CACHE

While trying to make a cache buffer available, Btrieve tried to write data to a logical disk drive from a file that was previously opened in accelerated mode. An I/O error occurred during a write.

53 INVALID INTERFACE

An application tried to access a file containing variable length records with a language interface from Btrieve v3.15 or earlier. To access files with variable length records, you must use v4.xx or later interface.

54 VARIABLE PAGE ERROR

During a Step Direct operation, Btrieve could not read all or part of the variable length portion of a record. In this case, Btrieve returns as much data as possible to your application. This error usually indicates file damage to one or more pages in the file.

55 AUTOINCREMENT ERROR

The application tried to specify either the segmented or duplicate attribute for an autoincrement key type. An autoincrement key cannot be part of another key and cannot allow duplicates.

56 INCOMPLETE INDEX

A supplemental index was damaged. This can occur if a Create Supplemental Index operation or a Drop Supplemental Index operation is interrupted and does not run to completion. Perform a Drop Supplemental Index operation to completely remove the index from the file.

57 EXPANDED MEMORY ERROR

This error is applicable only in the client-based DOS environment. Btrieve returns this status if it receives an error from the Expanded Memory Manager. This error usually means that Btrieve was unable to save or restore the memory mapping register context, indicating an incompatibility with another application that uses expanded memory.

58 COMPRESSION BUFFER TOO SHORT

The application tried to read or write a record that is longer than the value specified for the size of the compression buffer. Reconfigure the Btrieve Record Manager, specifying a higher value for the "Maximum Compressed Record Size" option.

59 FILE ALREADY EXISTS

This status code is returned for the Create operation if you specified -1 in the key number parameter and the name of an existing file in the key buffer parameter.

60 REJECT COUNT REACHED

Btrieve rejected the number of records specified by the reject count before an Extended Get/Step operation found the requested number of records which satisfy the filtering condition. Check the first two bytes of the data buffer returned for the number of records that were retrieved.

61 WORK SPACE TOO SMALL

The Extended Get/Step operations use the pre-image buffer as work space. This error code indicates that the work space was not large enough to hold the filtering data buffer structure and the largest record to be received. The size of the work space is configurable (see the *Btrieve Installation and Operation manual* for more information). Check the first two bytes of the data buffer returned for the number of records that were retrieved.

62 INCORRECT DESCRIPTOR

The descriptor (data buffer structure), which is passed for an extended Get or Step operation, is incorrect.

63 INVALID EXTENDED INSERT BUFFER

Extended Insert provides an invalid buffer. Either the buffer length is less than five bytes, or the number of records specified is zero.

64 FILTER LIMIT REACHED

During an Extended Get Next/Previous operation, a rejected record was reached. Furthermore, this rejected record is such that no other record can satisfy the given filtering condition, going in the direction specified by the operation. This is applicable only if the key specified by the key number is also used as the filtering field.

65 INCORRECT FIELD OFFSET

The field offset in the extractor of an Extended Get/Step is invalid based on the length of the retrieved record.

74 AUTOMATIC TRANSACTION ABORT

This is an informative status code and is applicable only in the server-based environment. Btrieve replaced an End Transaction operation with an Abort Transaction because an error had been detected for a TTS file inside the transaction. In addition, Btrieve executed the Abort Transaction operation.

78 DEADLOCK DETECTED

Btrieve detected a deadlock condition. The application should clear all resources (such as aborting or ending the transaction or releasing all record locks) before proceeding. This allows the other applications to access the resources for which they are waiting.

80 CONFLICT

The Update or Delete operation could not be performed because the record was changed by another application since your application read the record. Reread the record prior to resending an Update or Delete operation.

81 LOCK ERROR

This error can result from one of two conditions:

- The Btrieve lock table was full. Decrease the number of locks that your application uses or reconfigure the Btrieve Record Manager and specify a higher value for the "Maximum Number of Record Locks" option.
- The application tried to unlock one record that was locked with a multiple record lock, and the record position stored in the data buffer did not correspond with any record that was locked in that file.

82 LOST POSITION

When performing a Get Next or Get Previous on a key with duplicates, the application tried to retrieve a record that was deleted or whose key value was modified by another application. Re-establish positioning using a Get Equal or a Get Direct operation.

83 READ OUTSIDE TRANSACTION

The application tried to delete or update a record within a transaction, but the record was not read within the transaction. If you are going to update or delete a record within a transaction, you must read the record within the transaction to ensure you have first obtained exclusive access to the data.

84 RECORD LOCKED

The application tried to apply a nowait lock on a record that was currently locked by another application, or to apply a nowait lock on a file while another application held active record lock(s) in that file.

If this status code is returned, your application can use either of the following two methods:

- Retry the operation until it is successful. Under light to moderate network use, this may be the simplest and quickest solution.
- Use the wait option (+100/+300) instead of the nowait option.

85 FILE LOCKED

The application tried to apply a nowait record or file lock while another application held the file locked. This status code is also returned when the application tries to open a file outside of a transaction and the file is locked by some other application.

If this status code is returned, your application can use either of the following two methods:

- Retry the operation until it is successful. Under light to moderate network use, this may be the simplest and quickest solution.
- Use the wait option (+100/+300) instead of the nowait option.

86 FILE TABLE FULL

Btrieve's file table was full. Reconfigure Btrieve and specify a higher value for the "Maximum Number of Open Files" option.

87 HANDLE TABLE FULL

This status code is applicable only in the server-based and Windows environments.

Btrieve's handle table was full. Reconfigure the Btrieve and specify a higher value for the "Maximum Number of File Handles" option.

88 INCOMPATIBLE MODE ERROR

The application tried to open a file in an incompatible mode. If the first application to access a file opens it in accelerated mode, all other applications must open it in accelerated mode. If the first application to access a file opens it in non-accelerated mode, other applications cannot open the file in accelerated mode.

90 REDIRECTED DEVICE TABLE FULL

This status code is applicable only in the server-based environment.

BREQUEST's redirection table or server routing table was full. This occurs if you attach to additional servers or map to additional drives after you loaded BREQUEST. Reload BREQUEST, specifying a larger number for the "Number of File Servers" or "Number of Mapped Drives" options (/S and /R respectively).

This error also occurs if you detach a particular server and attach to a different server. Once a workstation has attached to a server, BREQUEST will not remove its name from the server routing table.

91 SERVER ERROR

This status code is applicable only in the server-based environment.

BREQUEST could not establish a session with the server. In NetWare environments, either the NetWare Btrieve Record Manager has not been started or the server was not active. Verify that the NetWare Btrieve Record Manager is active on the server in question.

92 TRANSACTION TABLE FULL

This status code is applicable only in the server-based environment.

The maximum number of active transactions was exceeded. Reconfigure Btrieve and specify a higher value for the "Number of Concurrent Transactions" option.

93 INCOMPATIBLE LOCK TYPE

Your application tried to mix single record locks (+100/+200) and multiple record locks (+300/+400) in the same file at the same time. All locks of one type must be released before a lock of the other type can be executed.

94 PERMISSION ERROR

Your application tried to open or create a file in a directory without the proper privileges. Btrieve does not override the network privileges assigned to users.

95 SESSION NO LONGER VALID

This status code is applicable only in the server-based environment.

The previously established session was no longer active due to an error at the workstation, the file server, or on the network. Verify that your workstation is still attached to the file server and then reload BREQUEST.

96 COMMUNICATIONS ENVIRONMENT ERROR

This status code is applicable only in the server-based environment.

This code occurs when loading Btrieve on a NetWare server. The SPX connection table is full. Reload SPX, specifying a higher value for the connection table. Refer to the NetWare system documentation for more information.

97 DATA MESSAGE TOO SMALL

This status code is applicable only in the server-based environment.

Your application tried to read or write a record which was longer than the Btrieve Record Manager or BREQUEST could handle. Reconfigure the Btrieve Record Manager and specify a higher value for the "Maximum Record Length" option. Reload BREQUEST and specify a higher value for the /D option.

- For an Update, Insert, or Create operation, the application receives this error if the data buffer length it specifies for the record exceeds the length specified for the Btrieve Record Manager or BSERVER.
- For a Get, Step, or Stat operation, the application receives this error if the value specified for the data buffer length is shorter than the length of the data Btrieve would return, regardless of the data buffer length specified in the program.

98 INTERNAL TRANSACTION ERROR

This status code is applicable only in the server-based environment.

An error has been detected while executing a previous operation on a NetWare TTS file. Therefore, no operation other than Abort Transaction (21) is allowed at this point.

99 THE REQUESTER CANNOT ACCESS THE NETWARE RUNTIME SERVER

The DOS Requester returns this status code when NetWare Runtime server support is enabled (/C:1) and the Requester either detects no existing connection or cannot find a valid login username. If the Requester cannot find a login username other than SUPERVISOR, there is no valid name to pass.

100 NO CACHE BUFFERS ARE AVAILABLE

Btrieve has used all the cache buffers it allocated at load time. Using the Setup utility, you can increase the value for the Cache Allocation configuration option. Alternatively, you can change the Number of Remote Sessions configuration option to decrease the number of concurrent Btrieve users. For more information, refer to Chapter 3, "Installing and Configuring Btrieve," in the *Btrieve Installation and Operation* manual.

101 INSUFFICIENT OPERATING SYSTEM MEMORY IS AVAILABLE

There is not enough operating system memory available to perform the requested operation. Decrease the value for the Cache Allocation configuration option (using the Setup utility), decrease the number of concurrent Btrieve users (using the Number of Remote Sessions configuration option in the Setup utility), or add memory to the server. For more information on the configuration options, refer to Chapter 3, "Installing and Configuring Btrieve," in the *Btrieve Installation and Operation* manual.

102 INSUFFICIENT STACK SPACE IS AVAILABLE

Btrieve has run out of stack space. To increase the amount of stack space available to your application, relink the application, setting the stack size to a higher value. Only the NLM applications calling Btrieve on the local server get this message.

103 THE CHUNK OFFSET IS TOO BIG

A Get Direct/Chunk operation has specified an offset beyond the end of the record, either explicitly or through the use of the next-in-record bias to the subfunction value. Unless Btrieve returns this status while processing the first chunk, the operation was partially successful. Check the data buffer length parameter immediately after the call to see how much data (and therefore how many chunks) Btrieve retrieved.

This code can also be returned by the Update Chunk operation when the specified offset is more than one byte beyond the end of the record. However, in this situation, Status Code 103 indicates that Btrieve made no changes to the record.

104 THE LOCALE INFORMATION COULD NOT BE FOUND

The Create or Create Index function returns this status code to indicate that the operating system was not able to return a collation table for the country ID and code page specified. Check that the application specified the locale's country ID and code page correctly and that the operating system is configured to support the country ID and code page.

105 THE FILE CANNOT BE CREATED WITH VARIABLE-TAIL ALLOCATION TABLES (VATS)

The application specified that a Btrieve file should be created with Variable-tail Allocation Tables (VATs); however, the application failed to specify that the file was to use variable-length records (a precondition for files to use VATs). This status applies to key-only files as well as regular data files.

106 THE OPERATION CANNOT GET THE NEXT CHUNK

The application called the Get Direct/Chunk operation to retrieve a chunk from a record and used the next-in-record bias on the descriptor subfunction. However, after the application established its positioning in the record (but prior to this call), the target record was deleted.

107 CHUNK UPDATES/RETRIEVALS CANNOT BE PERFORMED ON THE FILE

The application tried to use either a Get Direct/Chunk operation or an Update Chunk operation on a pre-v6.0 formatted file.

Client-Based Btrieve for OS/2 and Windows Status Codes

Client-based Btrieve may return the following status codes in an OS/2 or Windows environment.

1001 THE MULTIPLE LOCKS OPTION IS OUT OF RANGE

The number specified for the Multiple Locks configuration option must be between 1 and 255, inclusive.

1002 BTRIEVE CANNOT ALLOCATE THE MEMORY NEEDED

Make sure that the workstation has enough memory to load all the programs it requires.

1003 THE MEMORY SIZE IS TOO SMALL

Make sure the value for the Memory Size configuration option is large enough to accommodate the required cache size.

1004 THE PAGE SIZE OPTION IS OUT OF RANGE

The value of the Page Size configuration option must be an even multiple of 512, and it must be between 512 and 4,096, inclusive.

1005 THE PRE-IMAGE FILE DRIVE OPTION IS INVALID

You must specify a valid drive letter for the Pre-Image File Drive configuration option.

Note: Pre-image files are used only for files created by Btrieve versions earlier than v6.x, or by v6.x if it was loaded with the Create Btrieve Files in Pre v6.x Format configuration option set to Yes.

1006 THE PRE-IMAGE BUFFER SIZE OPTION IS OUT OF RANGE

The Pre-Image Buffer Size configuration option must be between 1 and 64, inclusive.

Note: Pre-image files are used only for files created by Btrieve versions earlier than v6.x, or by v6.x if it was loaded with the Create Btrieve Files in Pre v6.x Format configuration option set to Yes.

1007 THE OPEN FILES OPTION IS OUT OF RANGE

The Open Files configuration option must be between 1 and 255, inclusive.

1008 THE CONFIGURATION OPTIONS ARE INVALID

The configuration options specified contain invalid or unidentifiable values. For more information on configuration options, refer to the installation and operation manual for your operating environment.

1009 THE TRANSACTION FILENAME OPTION IS INVALID

The filename specified for the Transaction Filename configuration option is not valid. Check to make sure that the transaction filename is correct.

1011 THE COMPRESSION BUFFER SIZE SPECIFIED IS OUT OF RANGE

The Compression Buffer Size configuration option must be between 1 and 64, inclusive.

1013 THE TASK TABLE IS FULL (WINDOWS ONLY)

The Btrieve DLL may return this status code if the task entry table is full. You can remedy this situation by increasing the number of available task entries; use the tasks initialization option (tasks=xxx) under the [BTRIEVE] or [BREQUESTDPMI] headings in NOVDB.INI. The minimum value for this option is 1; the maximum value is 255.

1014 THE APPLICATION ENCOUNTERED A STOP WARNING

WBTRVSTOP () returns this status code if the application still has open files or an active transaction. The application must close all files and end all transactions before calling WBTRVSTOP ().

1015 A POINTER PARAMETER IS INVALID

One of the pointer parameters passed into Btrieve is invalid.

1016 BTRIEVE IS ALREADY INITIALIZED

The Btrieve DLL may return this status code if an attempt is made to initialize Btrieve when it is already initialized. To reinitialize Btrieve, close all files, end/abort all transactions, and call WBTRVSTOP () before calling the initialization function.

1017 THE BTRIEVE REQUESTER FOR WINDOWS CANNOT FIND WBTRVRES.DLL

WBTRCALL.DLL returns this status code when it cannot find the resource file WBTRVRES.DLL. You can remedy this situation by placing a copy of the WBTRVRES.DLL file in the same directory as the WBTRCALL.DLL file.

Btrieve Requester Status Codes

This section lists the status codes that the Btrieve Requesters may generate.

2001 THE MEMORY ALLOCATION IS INSUFFICIENT

In an OS/2 environment, the Requester cannot allocate enough memory for the parameters specified with the BRQPARMS environment variable. In a DOS environment, reduce the value specified for the /D configuration option.

2002 THE OPTION IS INVALID OR OUT OF RANGE

In an OS/2 environment, either one of the options specified with the BRQPARMS environment variable is invalid (such as /P instead of /D) or the value specified for a parameter is out of range. Check the SET BRQPARMS statements to make sure it is correct.

2003 THE REQUESTER DOES NOT ALLOW LOCAL ACCESS TO THE SPECIFIED FILE

The application attempted to access a file stored on a local drive. The version of WBTRCALL.DLL installed at the workstation does not allow access to local files.

2004 SPX IS NOT INSTALLED

Install the NetWare SPX v1.3 or later communications software for OS/2.

2005 AN INCORRECT VERSION OF SPX IS INSTALLED

Install the NetWare SPX v1.3 or later communications software for OS/2.

2006 THERE IS NO AVAILABLE SPX CONNECTION

SPX has already established the maximum number of sessions it can handle. To increase the maximum, edit the NET.CFG file. Refer to your NetWare documentation for more information on NET.CFG.

2007 A POINTER PARAMETER IS INVALID

One of the pointer parameters passed to Btrieve is invalid. Check the program to ensure that the pointer parameters are correct.

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