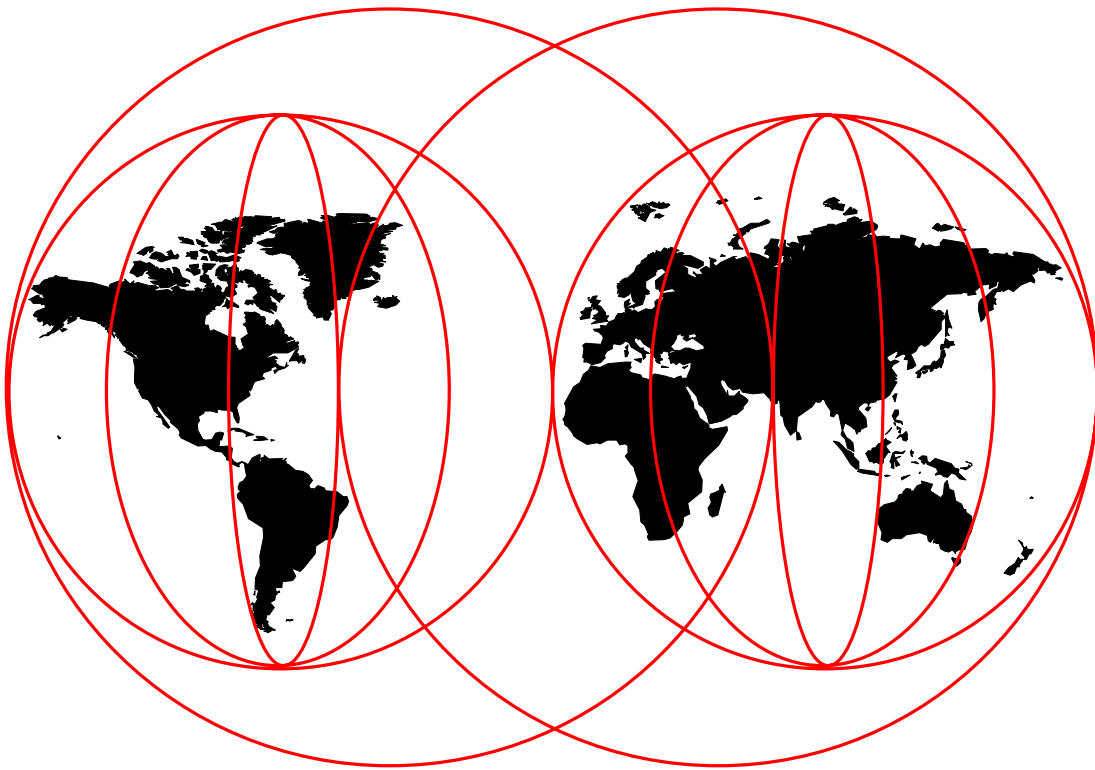




# Managing Applications with Tivoli IT Director

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**International Technical Support Organization**

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International Technical Support Organization SG24-5282-00

## **Managing Applications with Tivoli IT Director**

September 1998

**Take Note!**

Before using this information and the product it supports, be sure to read the general information in Appendix C, "Special Notices" on page 229.

**First Edition (September 1998)**

This edition applies to Version 1.2 of Tivoli IT Director for use with the Windows NT Operating System.

**Note**

This book is based on a pre-GA version of a product and may not apply when the product becomes generally available. We recommend that you consult the product documentation or follow-on versions of this redbook for more current information.

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## Preface

This redbook provides an overview of the applications management functions available with Tivoli IT Director. It also includes details about AMPs delivered with the base product as well as additional AMPs that will be available for Domino servers, Microsoft Exchange servers and Microsoft SQL servers.

There are separate chapters for each of the AMPs as well as chapters to show how to use multiple AMPs when needed to provide applications solutions management. In addition to showing the user interface that the Java-enabled Tivoli IT Director uses, details about what is going on behind the scenes in log files, databases and tasks are shown.

This book will help you to understand the benefits of applications management in the small and medium business environment using Tivoli IT Director. There are lots of examples of how to set up and manage specific components or tasks that can be used as the framework for providing applications management for all of the AMPs metrics.

---

## The Team That Wrote This Redbook

This redbook was produced by a team of specialists from around the world working at the Systems Management and Networking ITSO Center, Raleigh.

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Thanks to the following people for their invaluable contributions to this project:

Chris Gaskins, Jack Lapenta, Mark Rebuck  
Tivoli RTP

Roy Ritthaler, Dan Schwartz, Dan Smith  
Tivoli Austin

---

## Comments Welcome

### **Your comments are important to us!**

We want our redbooks to be as helpful as possible. Please send us your comments about this or other redbooks in one of the following ways:

- Fax the evaluation form found in “ITSO Redbook Evaluation” on page 239 to the fax number shown on the form.
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- Send us a note at the following address:

[redbook@us.ibm.com](mailto:redbook@us.ibm.com)

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# Chapter 1. Tivoli IT Director Overview

This chapter provides an overview of the software and hardware environments used in this project. In addition, it provides a general description of the Applications Management Specification as well as details of how the following AMPs relate to the specification:

- Domino AMP - Chapter 2, "Domino Applications Management" on page 5.
- Netscape AMP - Chapter 3, "Netscape Applications Management" on page 55.
- Microsoft IIS AMP - Chapter 4, "IIS Applications Management" on page 93.
- Microsoft Exchange AMP - Chapter 5, "Exchange Applications Management" on page 135.
- Microsoft SQL AMP - Chapter 6, "SQL Applications Management" on page 185.

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## 1.1 General Terms

While reading this book these terms should be understood:

<i>AMS</i>	Refers to Tivoli's application management specification Version 2.0.
<i>AMP</i>	Refers to application management packages built according to the AMS 2.0 specification.
<i>Web</i>	Refers to the World Wide Web (WWW) on the Internet.

---

## 1.2 ITSO Environment

In our environment we used Windows NT Server on most of our systems, since the applications are server applications. We had some agents (for example, Windows 98) but we also used Windows NT Server as an agent. We installed both TCP/IP and NetBEUI on our machines, but the Tivoli IT Director servers and agents were enabled only for TCP/IP. The NTSRV48 used the Jet Database with Tivoli IT Director and NTSRV101 logged Tivoli IT Director actions with the MS SQL V6.5 Database.

The following figure shows what hardware was used in this project.

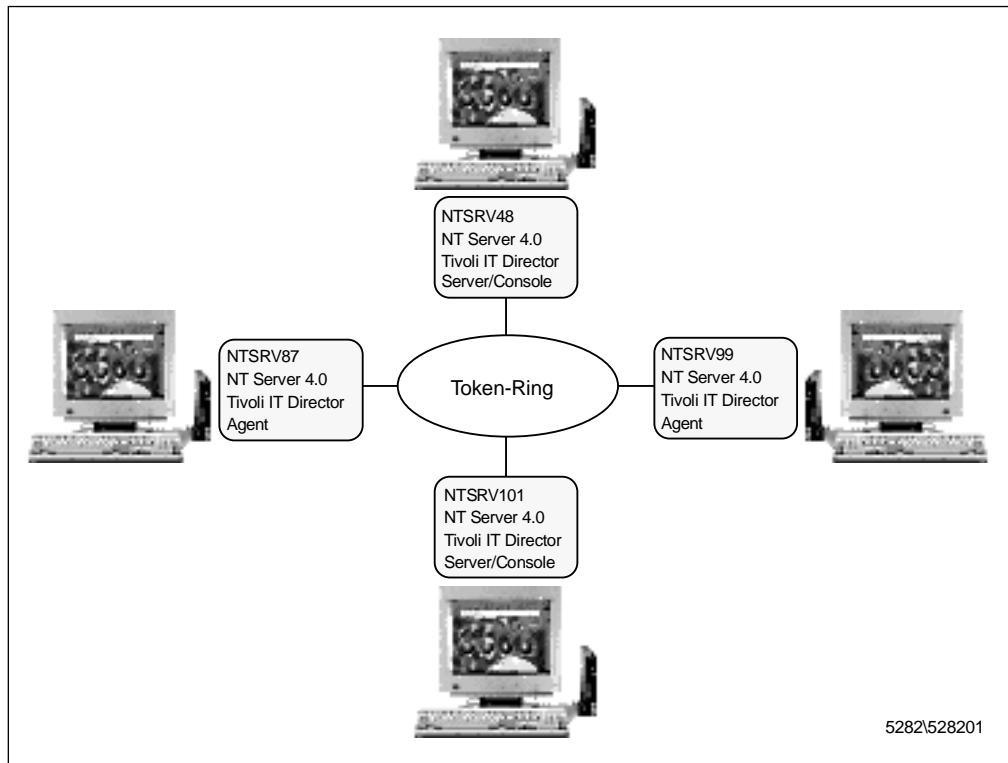


Figure 1. Hardware Environment

The following table shows what the software environment was for this project.

Identity	IP Address	Platform	Hardware	Patches	Tivoli IT Director	Software
<b>NTSRV48</b>	9.24.104.48 ntsrv48.itso.ral.ibm.com	Windows NT Server 4.0	PC 350 80 MB RAM 200 MHz	SP 3	Server/Console	IIS 3.0
<b>NTSRV87</b>	9.24.104.87 ntsrv87.itso.ral.ibm.com	Windows NT Server 4.0	PC350 80 MB RAM 200 MHz	SP 3	Agent	Netscape Enterprise Server V3.5.1 Netscape Proxy Server V3.5 MS Exchange V5.5 (SPI)
<b>NTSRV101</b>	9.24.104.101 ntsrv101.itso.ral.ibm.com	Windows NT Server 4.0	PC350 64 MB RAM 200 MHz	SP 3	Server/Console	IIS 3.0 SQL 6.5 (SP4)
<b>NTSRV99</b>	9.24.104.99 ntsrv99.itso.ral.ibm.com	Windows NT Server 4.0	PC350 64 MB RAM 166 MHz	SP 3	Agent	Domino 4.6a SQL 6.5 (SP4) IIS 4.0

5282/528202

Figure 2. Software Environment

## 1.3 Applications Management Specification

There is a constant demand on system administrators today to upgrade applications in a very timely manner. This puts a high demand on the system administrator to understand and know the resource demands, management requirements and the way the application interacts with other applications.

If systems administrators had graphical tools that were easy to use and provided detailed information for each query, then they would not be as dependent on product documentation and real world experience to be able to manage their applications. AMS simplifies all of those actions and since it is an open standard



any application management requirement can be interpreted by an AMS-enabled management tool.

Using the Application Management Specification, developers can use a tool that will find detailed information that may be hard to find otherwise. A few simple scripts and some tools will make this application management-ready. Here are a few examples of what kind of management AMS could help you with:

- Application monitoring
- Application configuring
- Security management
- Application installation
- Operational control
- Application response time management
- Dependency checking

AMS supports all classes of applications: commercial applications purchased from vendors, in-house applications built with conventional as well as client/server application development tools. It can be used for describing the management of both client/server and traditional stand-alone applications.

---

## 1.4 Overview of Application Management Package

A management tool needs a component known as an agent to be running on the machine hosting the software component in order to manage it. In our case it was the Tivoli IT Director agent. The Tivoli IT Director agent is responsible for placing the application management package (AMP) on the software server when it is invoked by the Tivoli IT Director server. The Tivoli IT Director will only communicate with the agent and never directly with the application itself on the software server. The agent itself will then determine when a script or program can be run, passing the appropriate arguments to the software server. Any output or errors will then be sent back to the agent, which will determine what to do with the output and send the proper information back to the Tivoli IT Director server. This description can be viewed graphically in Figure 3 on page 4, which is found in the Applications Management Specification V2.0 by Tivoli Systems.

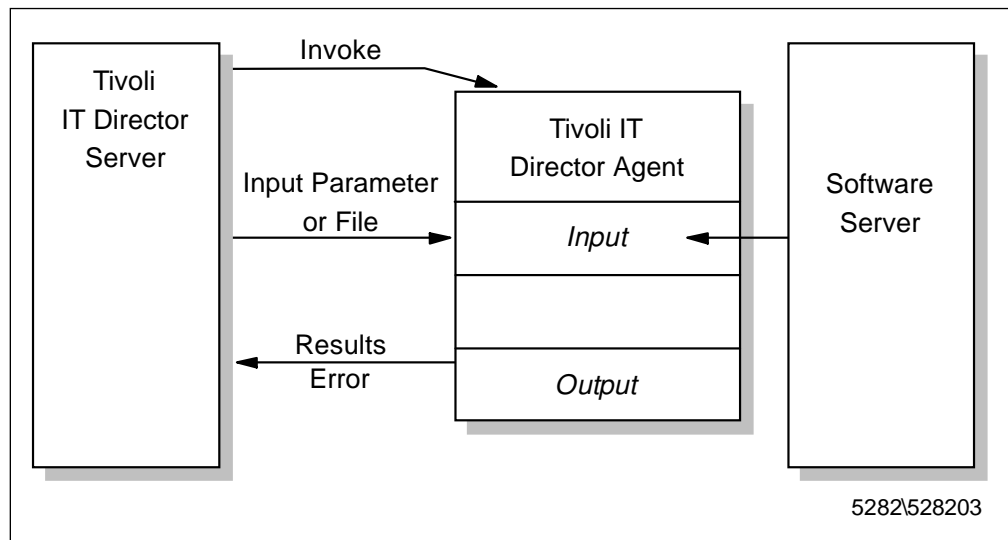


Figure 3. AMP Flow

## 1.5 What is a Management File Package

A management file package includes files required to manage the application on the agent's system. This includes files for operational tasks and monitors. After you create the management file package the information about the management file package is stored in two files on your Tivoli IT Director server. These two files will be created for you in the \TivoliWg\SwPkInst\ directory (assuming you chose the default directory) on the Tivoli IT Director server. The files will have the extensions FP and BLK, but the names of the files are different each time you create a management file package. This software package can then be distributed to the servers, thus allowing them to be managed from the Tivoli IT Director management console.

Topics that are covered in this publication include:

- How to install the AMP
- How to use monitors that are delivered with the AMP
- How to create a new monitor and implement it
- What tasks are delivered with the AMP
- How to create new tasks for each AMP
- Agent implications
- Software distribution implications
- Integration of the AMP event adapter

### HTML Pointers

For more information regarding AMS Version 2.0, please refer to the following HTTP addresses:

- [http://www.tivoli.com/o\\_products/html/body\\_white\\_paper\\_listing.html](http://www.tivoli.com/o_products/html/body_white_paper_listing.html)  
Tivoli White Papers (Managing Application Performance)

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## Chapter 2. Domino Applications Management

This chapter provides examples of the applications management functions that are implemented for Tivoli IT Director.

The Domino AMP will assist you in managing your Domino servers. You can perform various management tasks from the Tivoli IT Director management console. Some of the functions that can be performed are:

- Starting and stopping the Domino server
- Getting Domino server information
- Showing and modifying Domino users
- Viewing Domino server statistics
- Issuing commands to the Domino server

Before you can use Tivoli IT Director's application management to manage your Domino servers, you need to obtain the application management package (AMP) and install and distribute the AMP to the Domino servers. The Domino servers that you wish to manage and monitor must also be Tivoli IT Director agents on your network. You will not be able to distribute your application management package to the server otherwise.

---

### 2.1 Installing the Domino AMP

Installing the Domino AMP onto your Tivoli IT Director server is a simple task. You need to place the AMP file onto your server in the recommended directory of \TivoliWG\amps. It is not essential that the AMP file be placed into this directory, but keeping your AMPs together will help you find them more easily should you need to re-install the AMP at a later point in time. If the AMP is located in another directory, or even on another machine, use the Application Management window to locate your AMP and install it from there as shown in the following window.

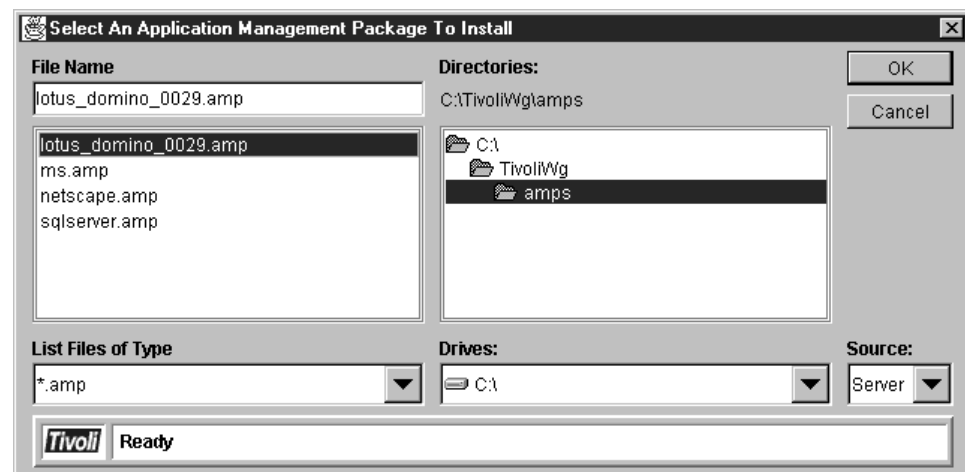


Figure 4. Locate the AMP to be Installed - Drives and Source

After you have located your AMP file, you can click on the **Install** button to install the AMP onto your Tivoli IT Director server.

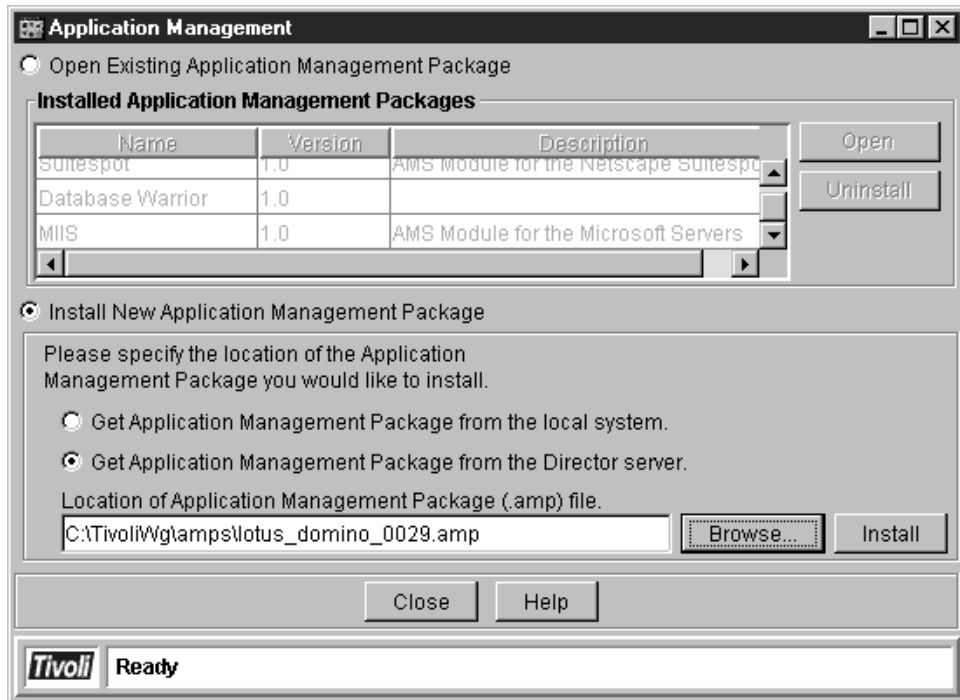


Figure 5. Install the AMP you have Selected



Figure 6. The AMP is Read and Installed

The Application Management window now displays information about the AMP that you have just installed. Under the Components heading, you see two components (see Figure 7 on page 7). The first component is called *Application Tools* and it is a prerequisite for the other component, *Domino\_Server*, to operate properly. The Application Tools create the environment on the host machine for the monitors and tasks to execute properly.

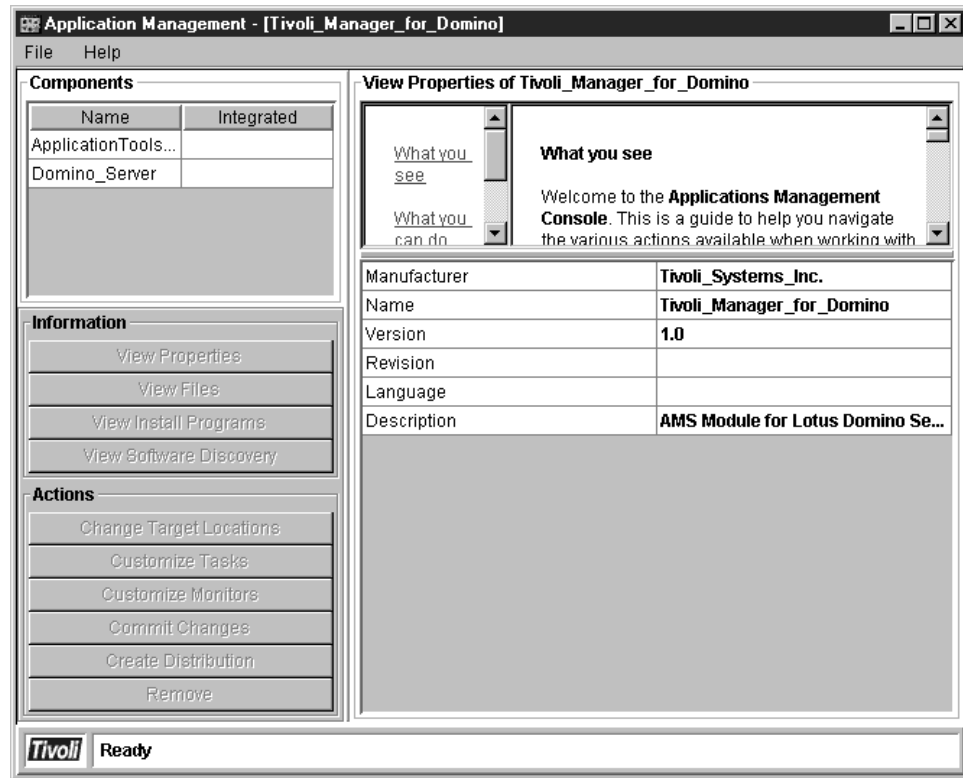


Figure 7. Application Manager Displays the Domino AMP

Select the **Information** buttons on the left pane of the window so that you can view the following information:

1. *View Properties* - Gives you general information about the highlighted component, such as version number and manufacturer.
2. *View Files* - Allows you to see a list of the files that will be launched to perform the monitoring and managerial tasks that you require.
3. *View Install Programs* - Lists the executables that will be run in order to install the software onto the host server.
4. *View Software Discovery* - Verifies that the machine that the AMP is distributed to does in fact have Domino server software installed.

Highlighting the Domino\_Server component in the Components panel will allow you to see the available tasks and monitors that are available for the Domino AMP. You can customize these tasks and monitors before you commit the changes, or you can commit the changes first and then set up individual tasks and monitors at a later stage. If you want tasks to run unattended, or in response to a threshold being exceeded, you will need to configure and save the particular tasks first.

### 2.1.1 The Domino Tasks

Figure 8 on page 8 shows the tasks that are available for the Domino AMP. These tasks can be customized now or later on.

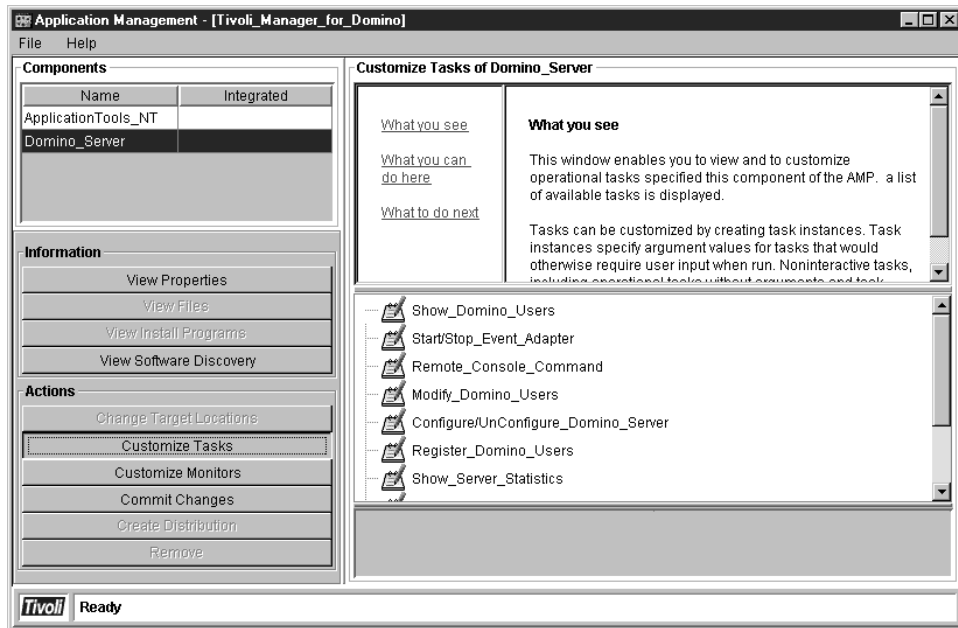


Figure 8. The Available Tasks for Domino Server

We will discuss these tasks in detail in 2.2, “Working with the Domino AMP Tasks” on page 25.

To customize the tasks, right click on the task icon for **Show\_Domino\_Users** and select **Create New Task Instance**. You will be presented with the window shown in Figure 9. There are two possible instances of this task that you can perform. You can show all users or look up a single user.

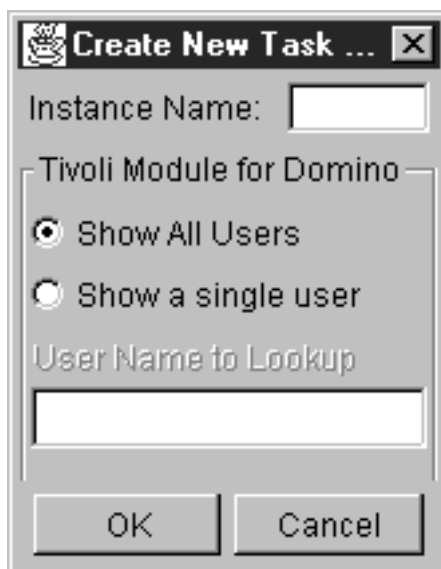


Figure 9. Customizing a Task

The start or stop event adapter can accept the arguments shown in Figure 10 on page 9.

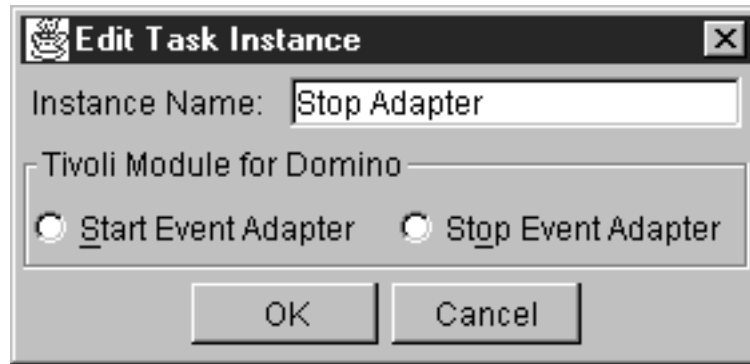


Figure 10. Customizing the Start/Stop Event Adapter

## 2.1.2 The Domino Monitors

Clicking on the **Customize Monitors** button will allow you to view the monitors that are available for the Domino server and to add thresholds for the monitors. Figure 11 shows the three groups of monitors that are available for the Domino server. Expand these groups to get a full view of what the monitors are designed to do.



Figure 11. The Available Monitors for Domino Server

You can add thresholds to the monitors by right clicking on the monitor and then selecting **Add Threshold**. You must specify the Director severity for the threshold. The value for the Director Severity field can be *High Error*, indicating that an error condition exists due to a value being exceeded. The opposite is true for a Low Error. High and Low warnings depict a state of warning if a specified value is exceeded or if a value drops below the threshold.

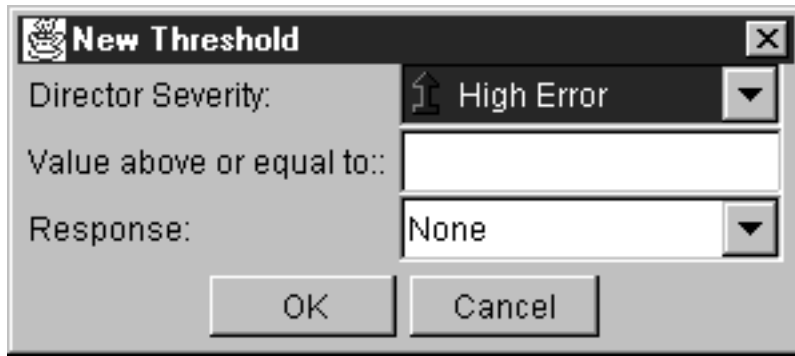


Figure 12. Adding a Threshold to the Monitor

The response that is generated is selected from a group of tasks that you have configured for the AMP. If you would like the monitor merely to inform you of the event and not to take any action, then leave the Response field as *None*.

The group of monitors under Domino\_Statistics\_Monitor consists of the monitors that you would use as a Domino administrator to collect statistics from your Domino server.



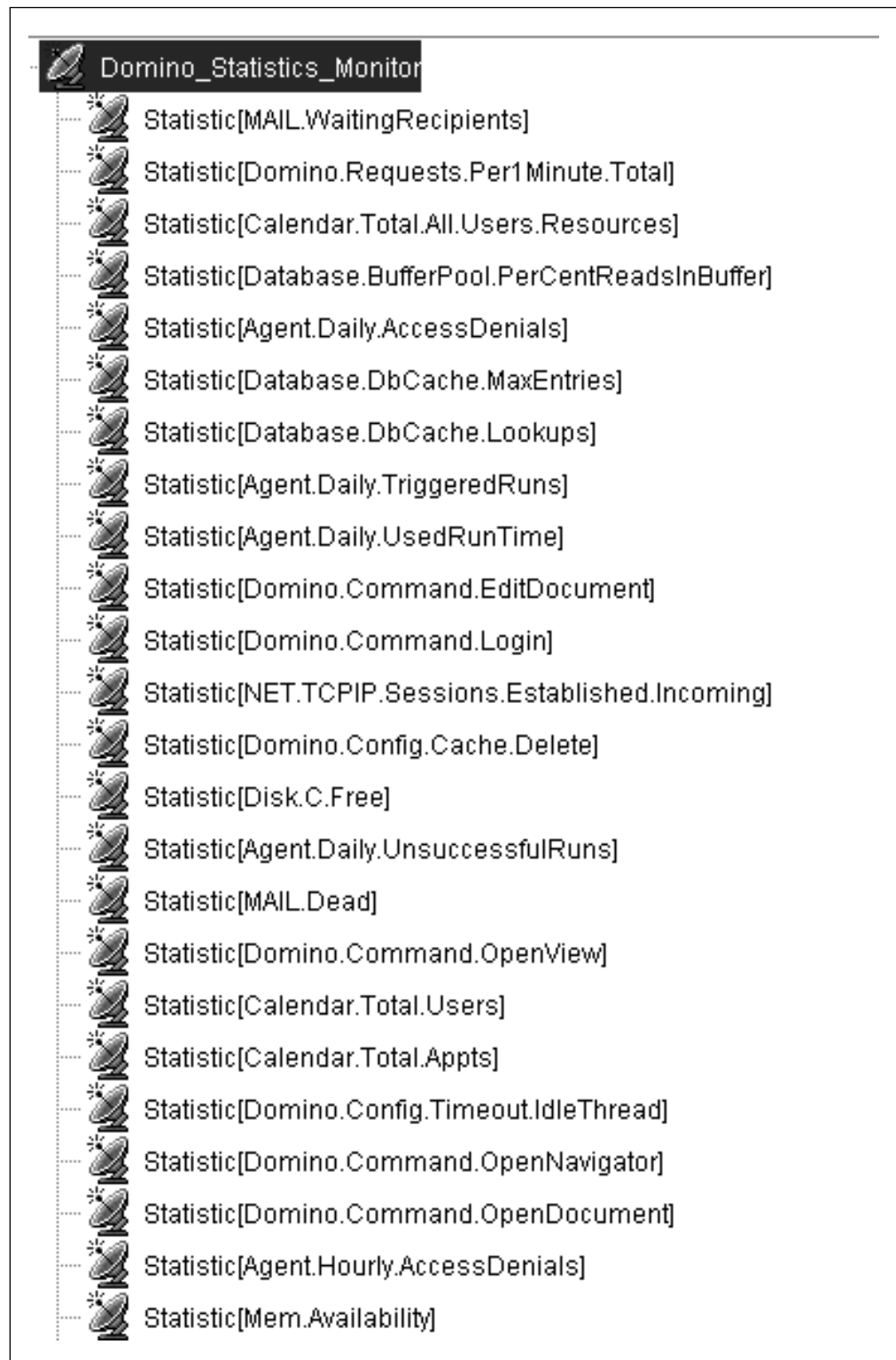


Figure 13. Statistic Monitors for Domino

You can also create your own instance of a monitor, and modify an existing statistics monitor. To create a new statistics monitor instance, right click on the **Domino\_Statistics\_Monitor** icon and select **Create New Monitor Instance**. The window that appears allows you to select a metric from a list or you can enter your own in the space provided. Figure 15 on page 13 shows a list of some of the

available static monitors that can be used to create your own monitor and Figure 14 on page 12 shows where you would enter your own argument for the monitor.

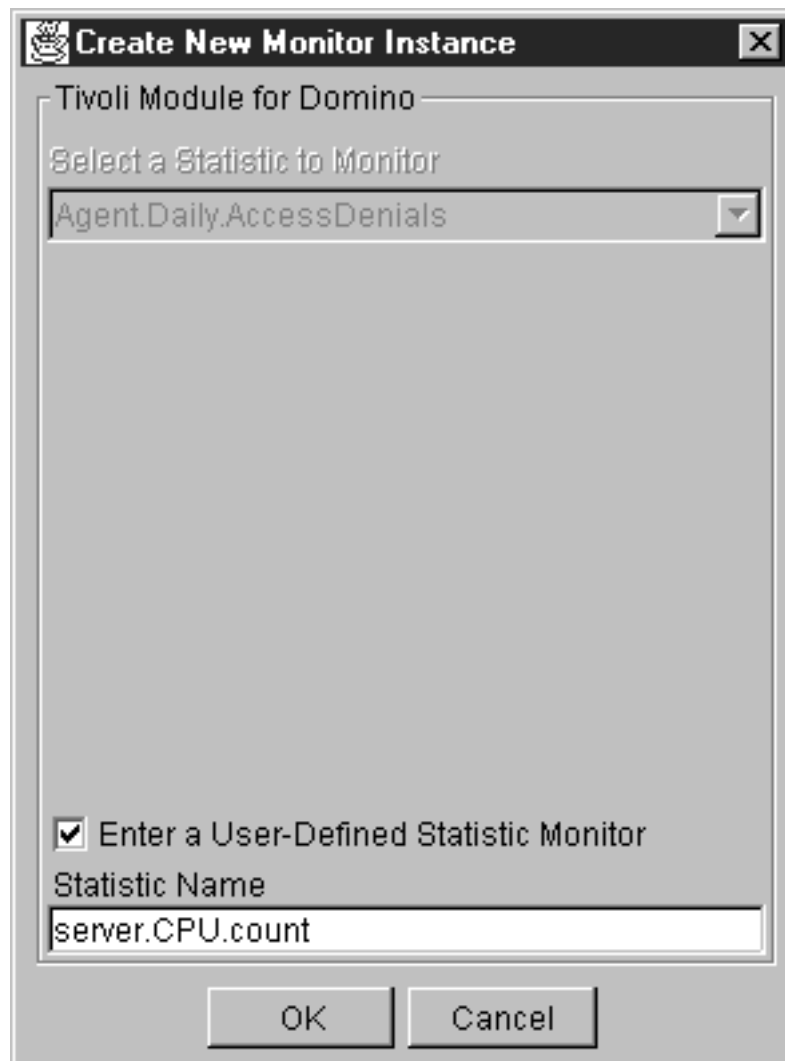


Figure 14. Enter Your Own Static Monitor

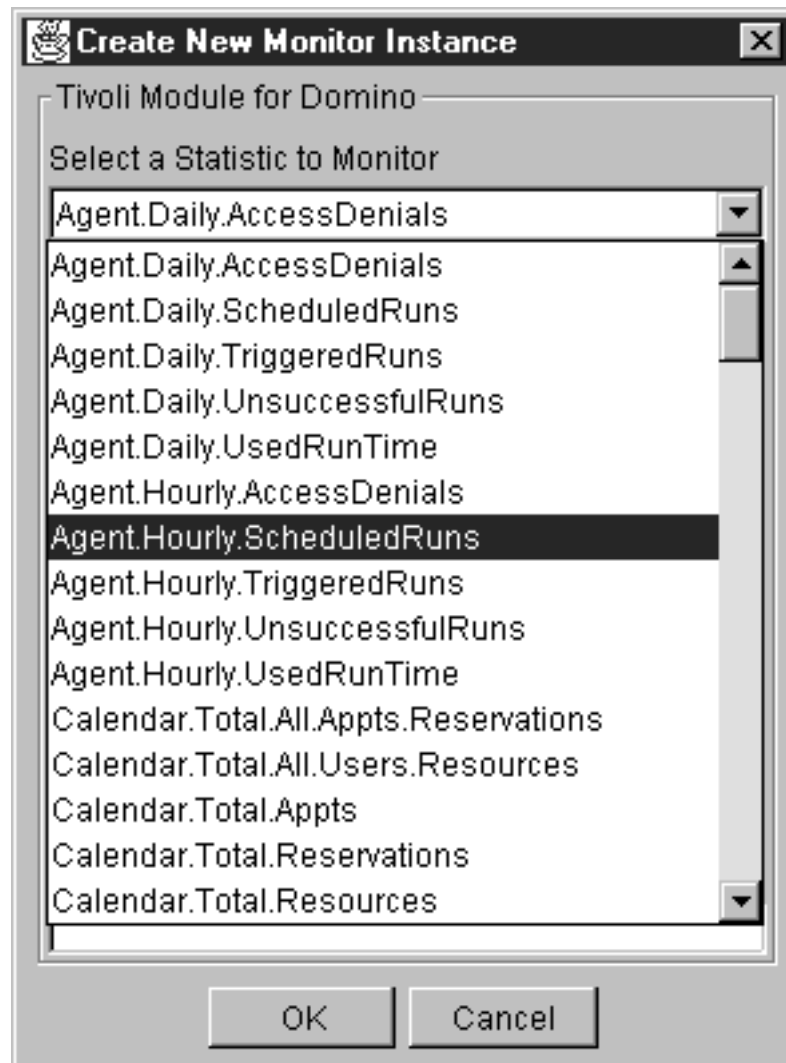


Figure 15. List of Available Static Monitors

There are two other groups of monitors available to monitor your server. They are the Domino\_PingServer and the Domino\_AddinTask monitors.

Domino\_Ping\_Server checks to see if your server is online and responding. The Domino\_AddinTask monitor contains a group of monitors that are specifically used to monitor the server tasks that can be run under control of the main server program.

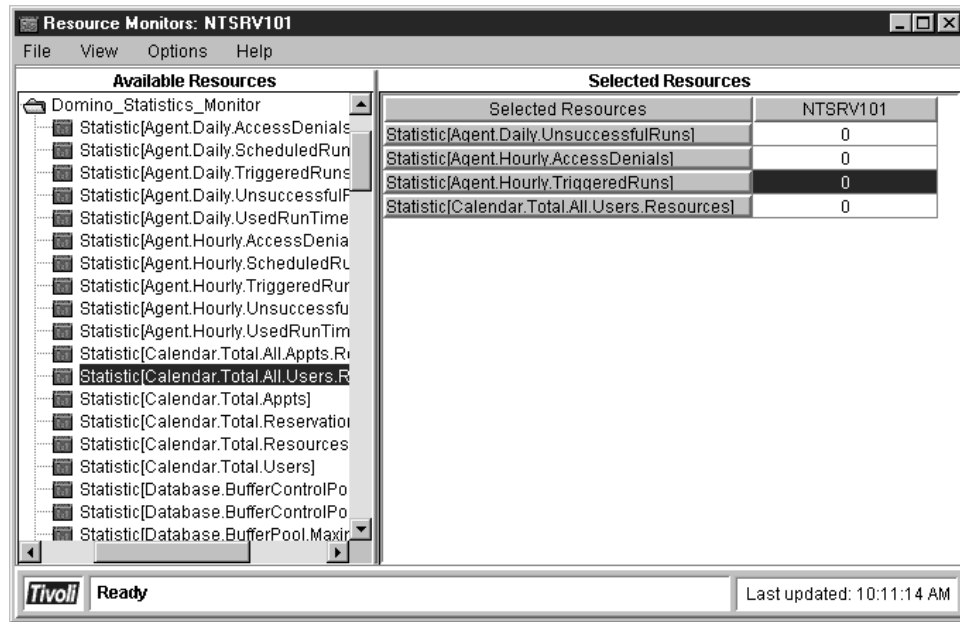


Figure 16. Live Statistics

Figure 16 shows some of the Domino monitors being run against a live Domino server. These monitors were run from within the performance monitor function of the Tivoli IT Director.

Some of the server task monitors that are available are:

- *Nrouter* - This monitors the mail router.
- *Namgr* - This monitors the running of databases.
- *Nadminp* - This monitors name changes.
- *Nreport* - This monitors the statistical reporting of data to the database.
- *Nreplica* - This monitors the changes that are propagated to other notes servers.

Once you have added any thresholds to the tasks that you will be using you can commit the changes. It is not a requirement to add thresholds to any of the monitors before you can use the Domino AMP. If you want a specific task to be performed once a threshold is met, such as stopping the Domino server, you will need to have predefined thresholds. You can, however, still monitor the Domino server and even publish the statistics to your Web site without having configured thresholds beforehand. This is also true for the other AMPs discussed in this book.

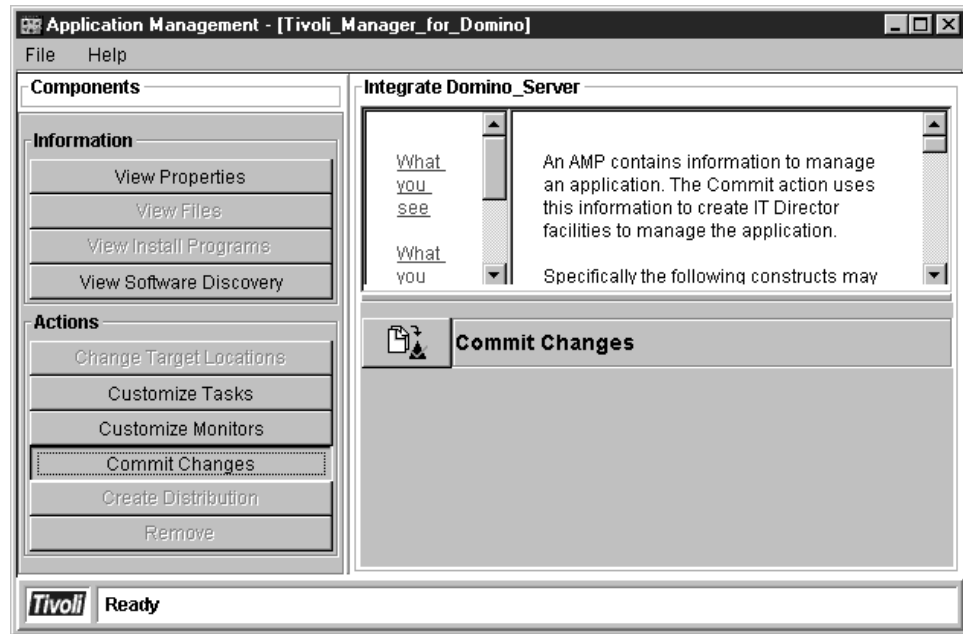


Figure 17. Commit Your Changes

Click on the **Commit Changes** button to commit your changes. The modified AMP will be saved on the hard disk of the Director server. Even if you have not made any changes to the AMP you will still need to commit the changes as a prerequisite for creating the management file package for software distribution.

Once the changes have been successfully committed you are ready to create the management file package (MFP). The MFP is what is distributed to your Domino server to allow it to be managed from Tivoli IT Director. You will not be able to manage any server unless you have first distributed the MFP to the target server.

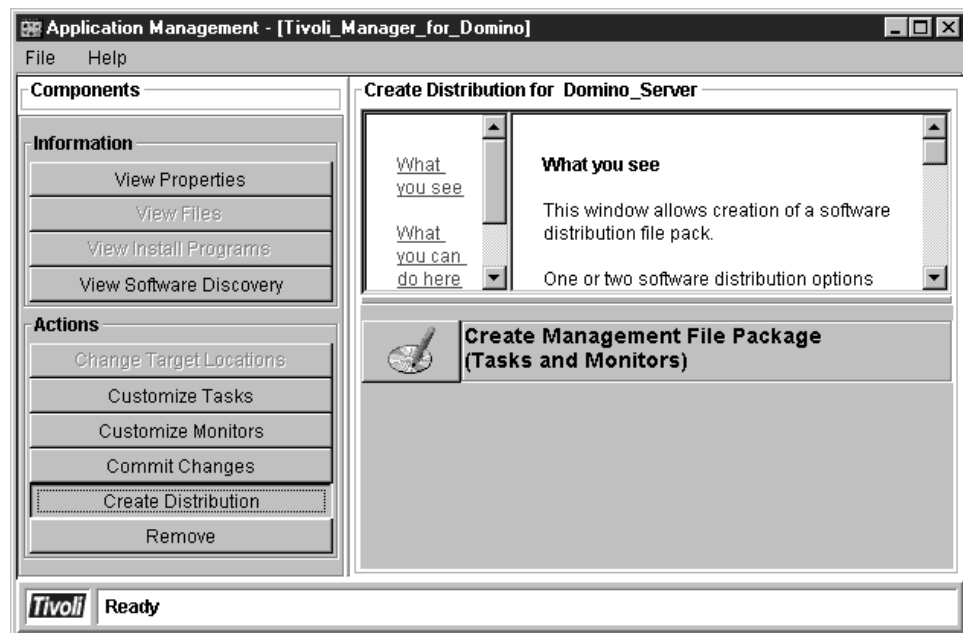


Figure 18. Create the Management File Package

Click on the **Create Management File Package** button to begin the creation process.

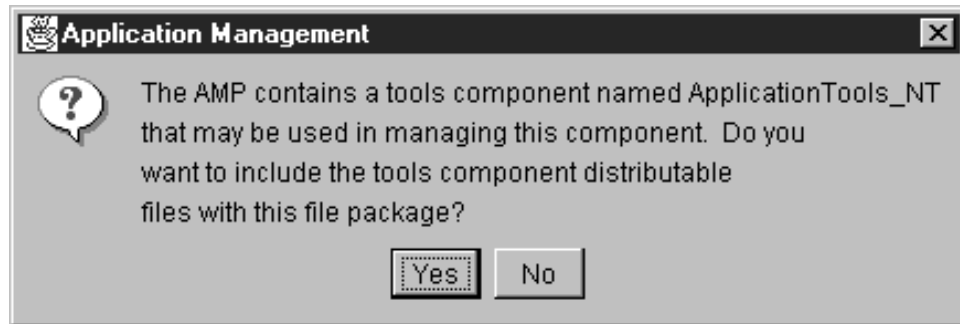


Figure 19. Including the Application Tools

Figure 19 will pop up asking whether you wish to include the Application Tools with the file package. The application will create the environment for the tasks and monitors to perform on the host server. It is suggested that you include the application tools whenever you create an MFP. Failure to include the application tools could lead to undesirable results, or even worse, no results. Advanced users of Tivoli IT Director may wish to use the Tivoli Module Designer to create their own application management program and, therefore, they would not need to include the Application Tools.

**Note:** More information on Tivoli Module Designer can be found at [http://www.tivoli.com/o\\_products/html/tiv\\_module\\_designer.html](http://www.tivoli.com/o_products/html/tiv_module_designer.html).



Figure 20. Name Your Management File Package

You now have an opportunity to name your file package. Unless you set up different options in the AMP for different servers, it is not significant what you name the file package. For this example, we decided to leave the default name since we only had one Domino server.

Once the management file package is created you are ready to manage your Domino server. The MFP that you created is added to the Tivoli IT Director console as shown in Figure 21 on page 17. Notice that the Domino server appears as a task under Software Distribution in the Tasks column and as a group of systems in the Groups column.

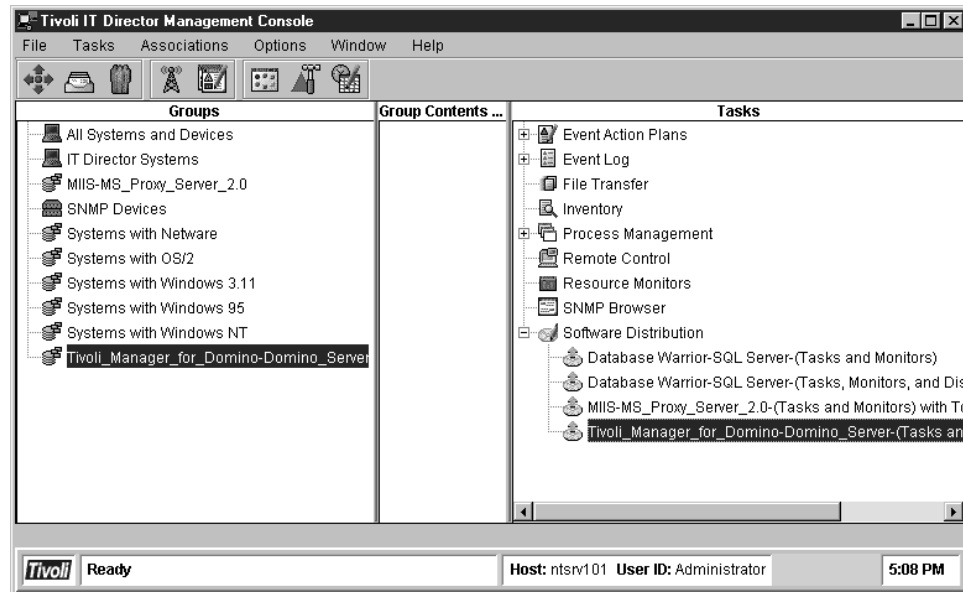


Figure 21. New Additions to the Management Console

### 2.1.3 Distributing the Domino AMP

In order for a Domino server to be managed there are two steps that must first be completed.

1. The management file package must be distributed to the host server using software distribution.
2. The Domino server must be configured to respond to commands from Tivoli IT Director.

Distribute the management file package to the Domino server by either dragging the server icon of your Domino server from the group contents panel on the management console onto the Tivoli manager for Domino icon in the Tasks panel or drag the Domino task and drop it onto the server icon.

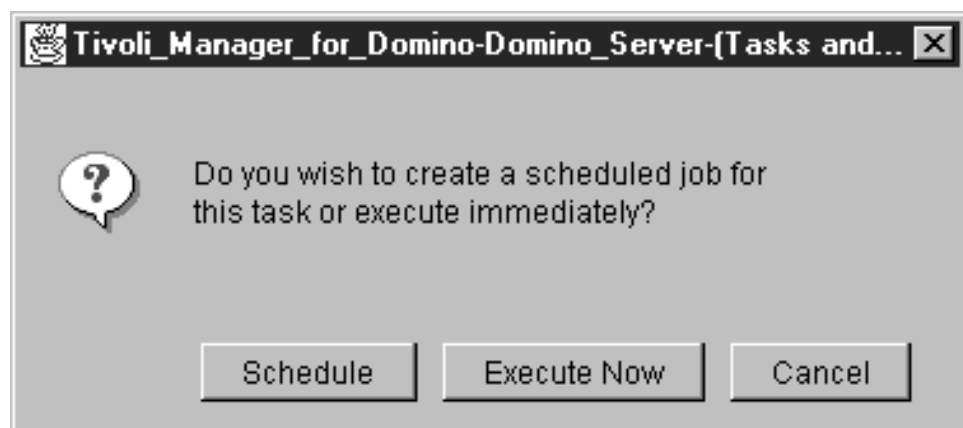


Figure 22. Distribute the File Package

Once you have dropped the icon onto the target Figure 22 will be displayed, allowing you to specify when to initiate the software distribution. You can execute the task immediately or schedule the task to run unattended at another time.

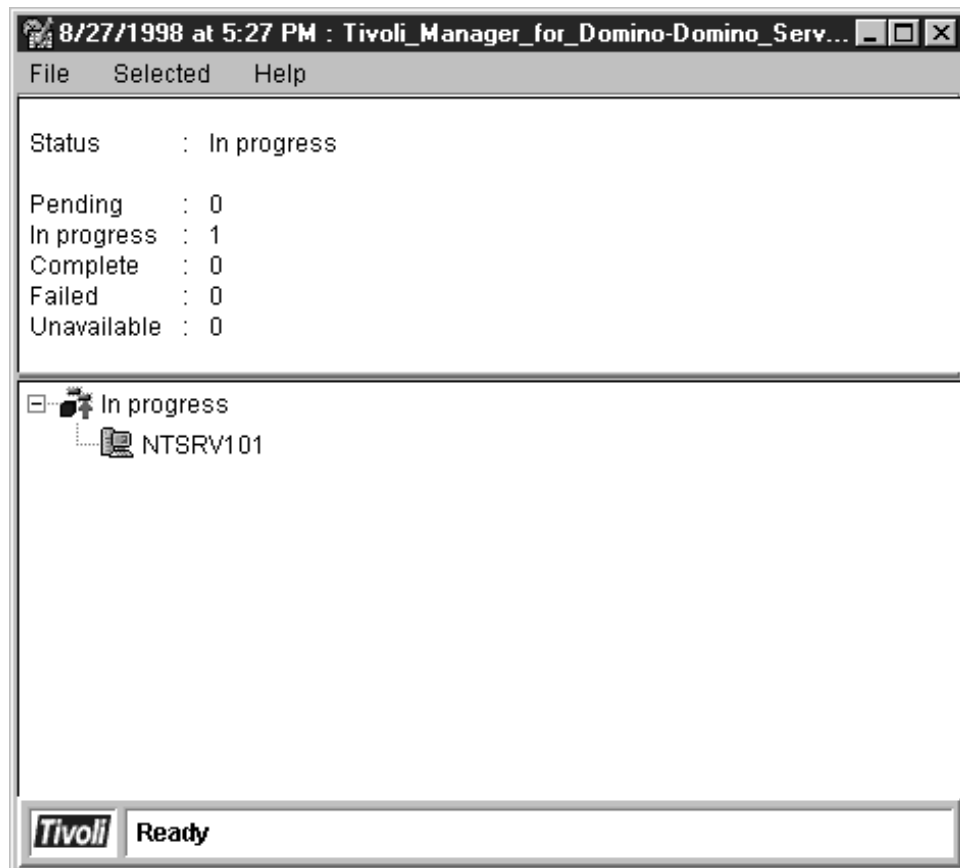


Figure 23. The File Package is Distributed

The operation of the file distribution is logged and the log can be viewed by right clicking on the server icon in the progress indicator window (Figure 23) and selecting **View System Log**. Figure 24 shows the detailed log view for the file MFP creation task.

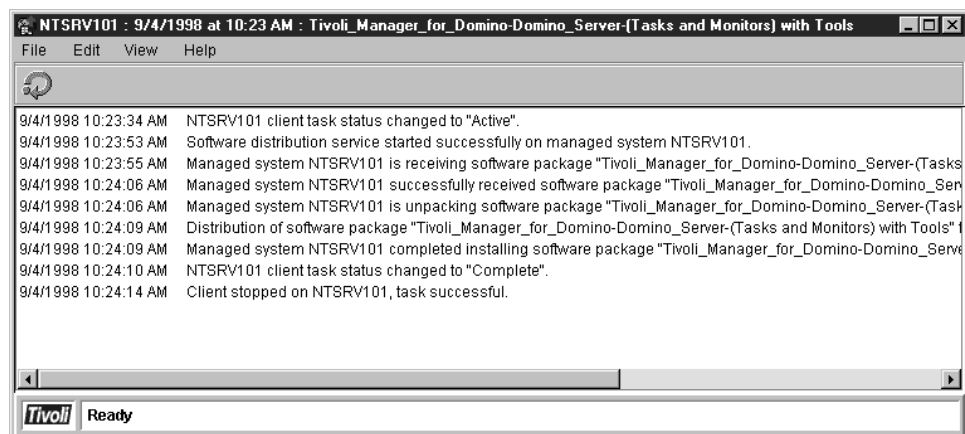
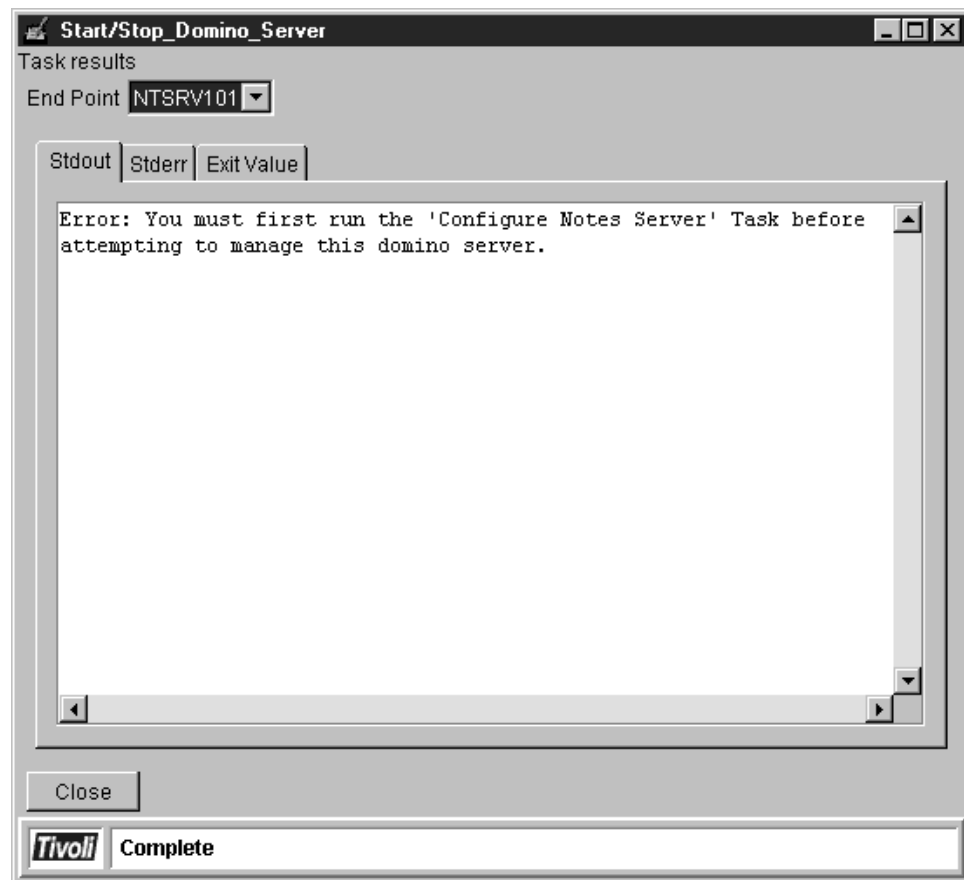


Figure 24. The File Distribution Log

Once the software distribution package is distributed Figure 23 will be displayed, showing the progress of the software distribution. After the software distribution is complete, you must first run the *Configure Notes Server* task before you can start using the MFP to manage your Domino server.



Should you forget to configure the Domino server first, you will be confronted with an error message. An example of such an error is displayed in Figure 25 on page 19.



*Figure 25. Error - You Must First Configure the Notes Server*

Right click on your Domino server's icon in the group contents panel of the console to bring up the menu as shown in Figure 26 on page 20.



Figure 26. Right Click Server and Select Tivoli\_Manager\_for\_Domino

Now highlight the Tivoli\_Manager\_for\_Domino\_Server option and select the Configure/Unconfigure\_Domino\_Server option. Should you decide to make your Domino server an unmanaged server later on, you would use the UnConfigure Server option.

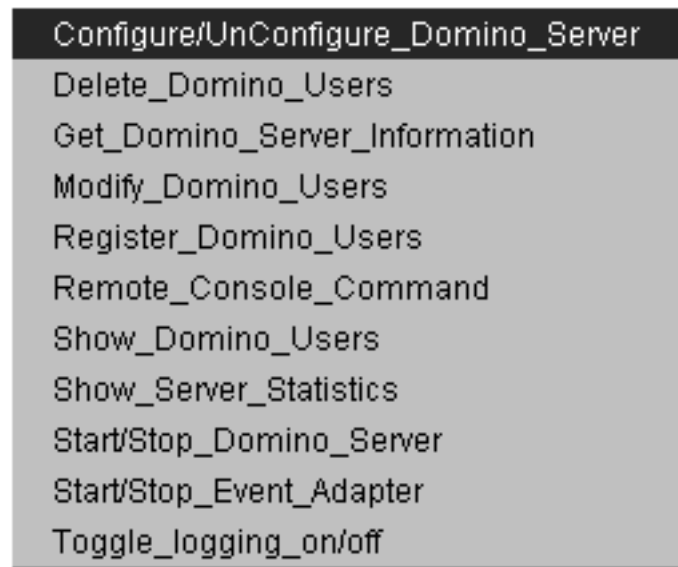


Figure 27. Select the Configure / Unconfigure Domino Server

The Configure Server task requires an argument in the form of a fully qualified hostname for your Domino server. The UnConfigure Server task does not accept an argument.

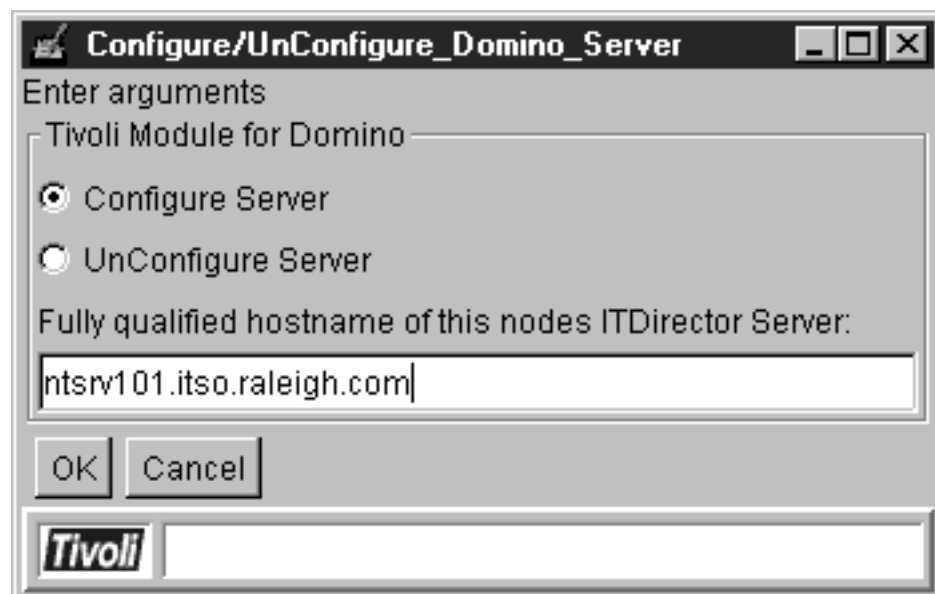
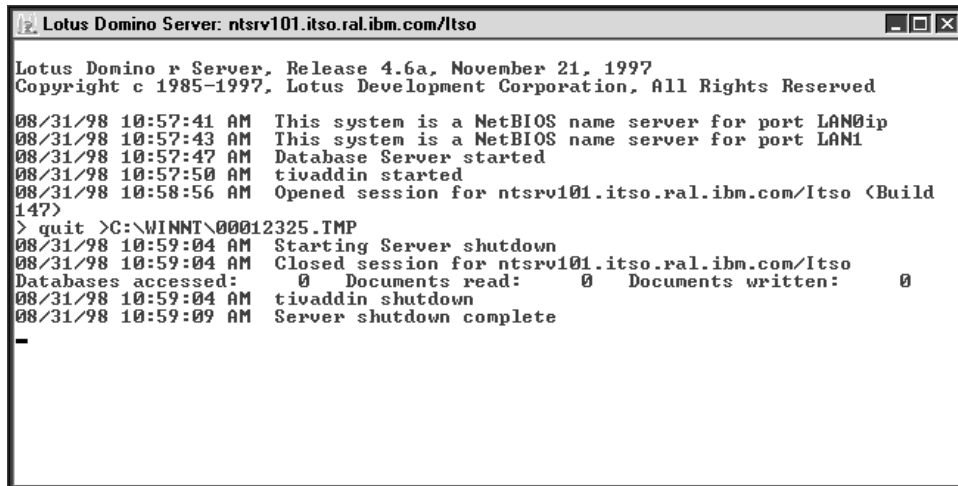


Figure 28. Enter Arguments to Configure the Domino Server

Click on the **OK** button in Figure 28 to configure the Domino server. Once the task is activated, the Domino server command window is opened (see Figure 29 on page 22). The window shows the configuration of the server in progress.



```
Lotus Domino Server: ntsrv101.itso.ral.ibm.com/Itso
Lotus Domino r Server, Release 4.6a, November 21, 1997
Copyright c 1985-1997, Lotus Development Corporation, All Rights Reserved

08/31/98 10:57:41 AM This system is a NetBIOS name server for port LAN0ip
08/31/98 10:57:43 AM This system is a NetBIOS name server for port LAN1
08/31/98 10:57:47 AM Database Server started
08/31/98 10:57:50 AM tivaddin started
08/31/98 10:58:56 AM Opened session for ntsrv101.itso.ral.ibm.com/Itso <Build
147>
> quit >C:\WINNT\00012325.TMP
08/31/98 10:59:04 AM Starting Server shutdown
08/31/98 10:59:04 AM Closed session for ntsrv101.itso.ral.ibm.com/Itso
Databases accessed: 0 Documents read: 0 Documents written: 0
08/31/98 10:59:04 AM tivaddin shutdown
08/31/98 10:59:09 AM Server shutdown complete
-
```

Figure 29. Domino Server is Configured

It doesn't matter if your Domino server is running. We configured the server for use with the AMP while the Domino server was down.

On completion of the configuration process the task results are displayed, as shown in the following window.

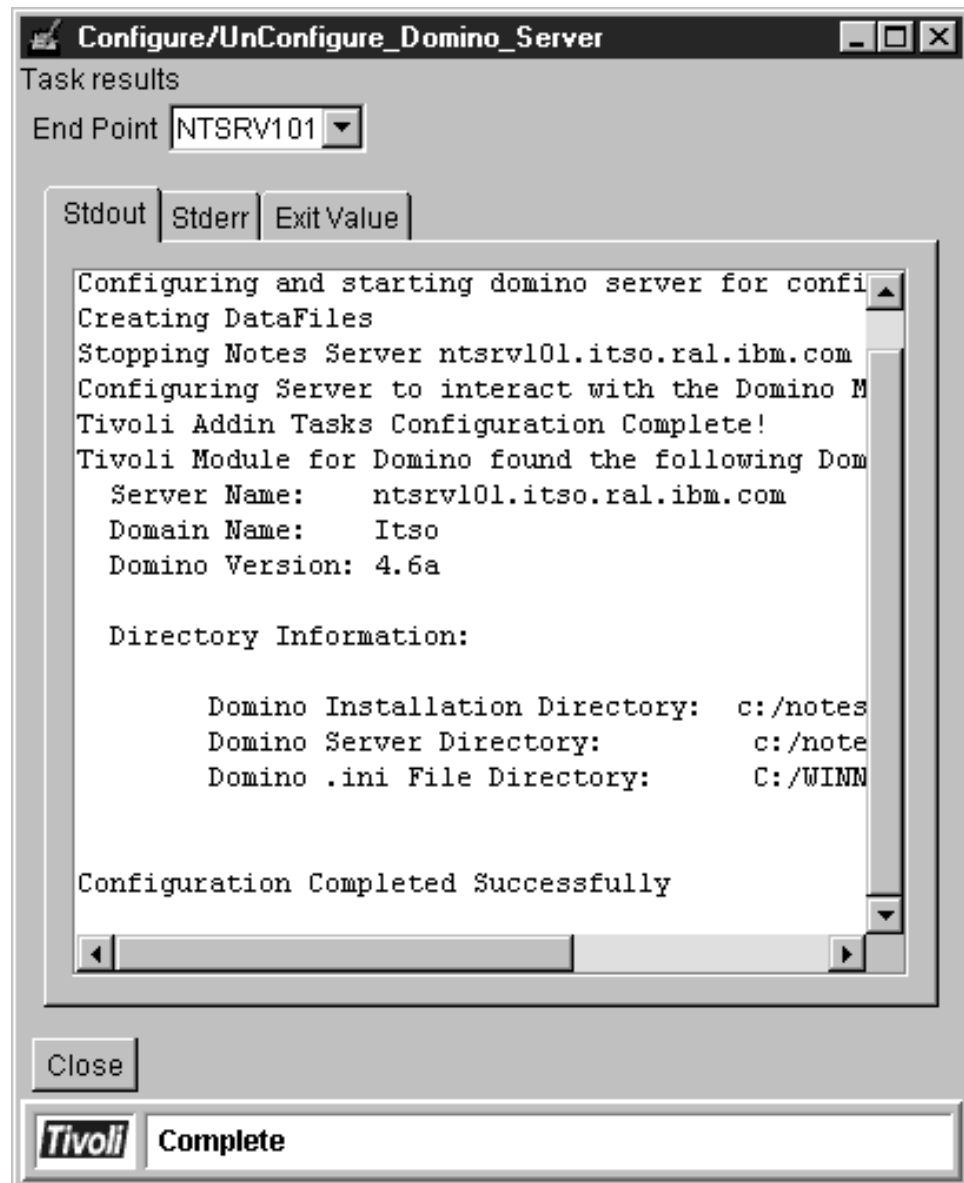


Figure 30. Task Results for the Configuration Process

Figure 30 shows some directory information indicating where some of the Domino components are located. The other files that are modified when the server is configured are:

- \etc\ams\_info\domino\1.0\data\notes\_env.cmd (added)
- \etc\ams\_info\domino\1.0\data\notes\_env.sh (added)
- \etc\ams\_info\domino\1.0\log\ams\_domino\_config\_server.log (modified)
- \notes\nitd\_adapter.exe (added)
- \notes\ntivaddin.exe (added)
- \notes\data\cluster.ncf (modified)
- \notes\data\help4.nsf (modified)
- \notes\data\JOBSCHED.NJF (modified)

- \notes\data\log.nsf (modified)
- \notes\data\names.nsf (modified)
- \notes\data\pid.nbf (modified)
- \notes\data\userinfo.nsf (added)

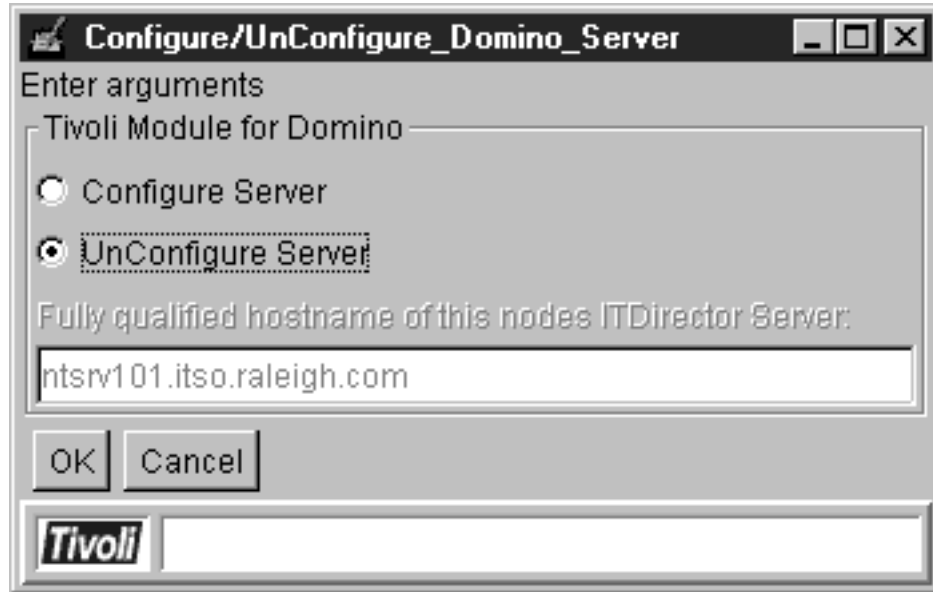


Figure 31. Unconfigure the Domino Server

Should you no longer want your Domino server to be a managed device you can always unconfigure the Domino server. The UnConfigure Server task does not require any arguments, as shown in Figure 31.

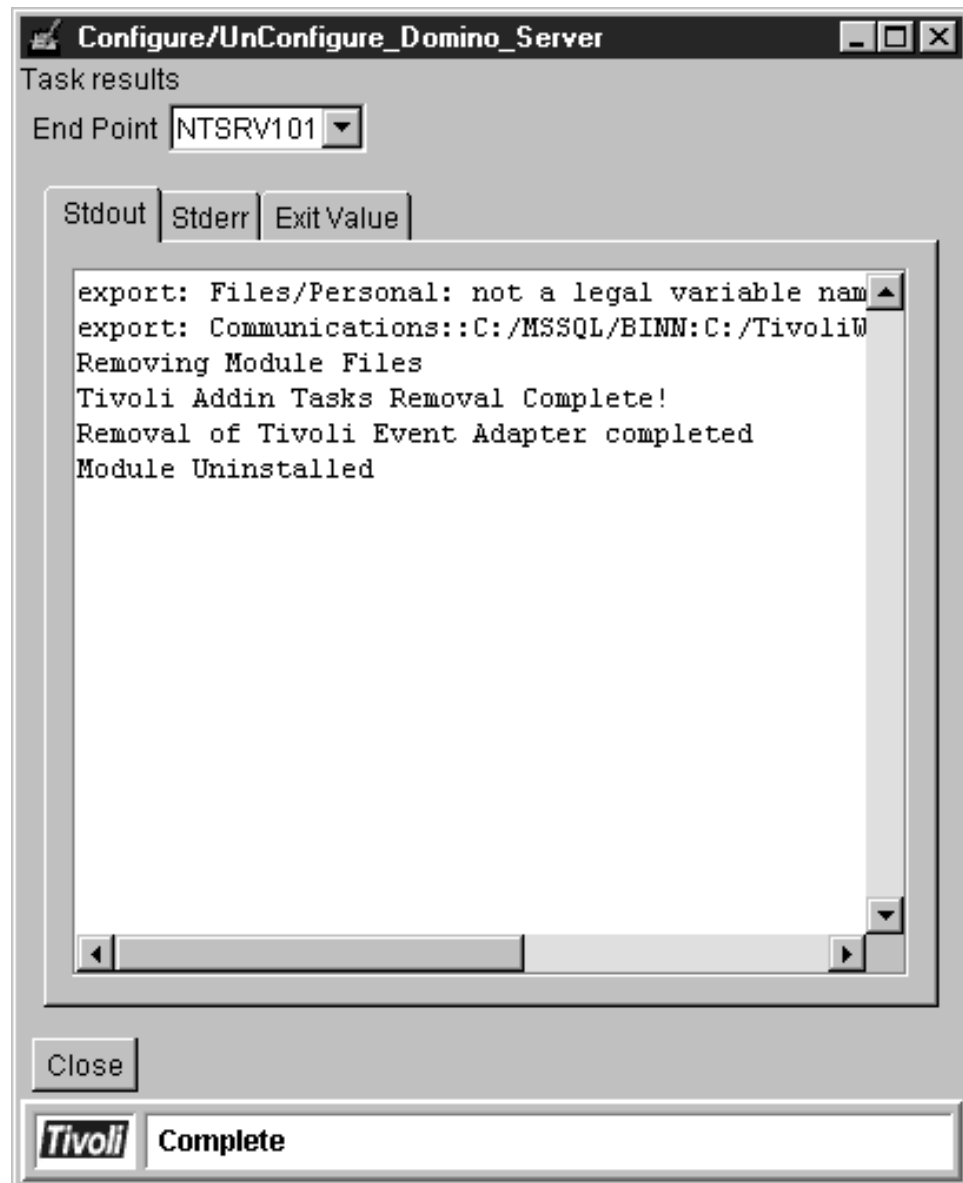


Figure 32. Task Results for Unconfiguration

Once the management file package has been distributed to the Domino server successfully, you can begin to monitor and perform tasks on the Domino server using the Tivoli IT Director console.

## 2.2 Working with the Domino AMP Tasks

The Domino AMP will allow you to perform Domino commands and operations from your Tivoli IT Director console. The tasks that you wish to perform can be configured while installing the AMP for the first time or you can execute them directly from the console. The Domino tasks can be found by right clicking the Domino server's icon in the Director console and selecting the Tivoli\_Manager\_for\_Domino option. The tasks that will be discussed are:

- Starting and stopping the server
- Getting server information

- Show Domino users
- Toggle logging on and off
- Remote console commands
- Delete Domino users
- Register Domino users
- Show server statistics
- Start and stop the event adapter

### 2.2.1 Starting and Stopping the Server

To start the Domino server, right click on the server's icon and select the **Tivoli Manager for Domino Server** menu. Starting or stopping the Domino server are the only two options. There are no arguments for this task. The option that is selected by default when you select the task is dependent upon the status of the Domino server. If your server is not started, the task will default to the start server option.



Figure 33. Start the Domino Server



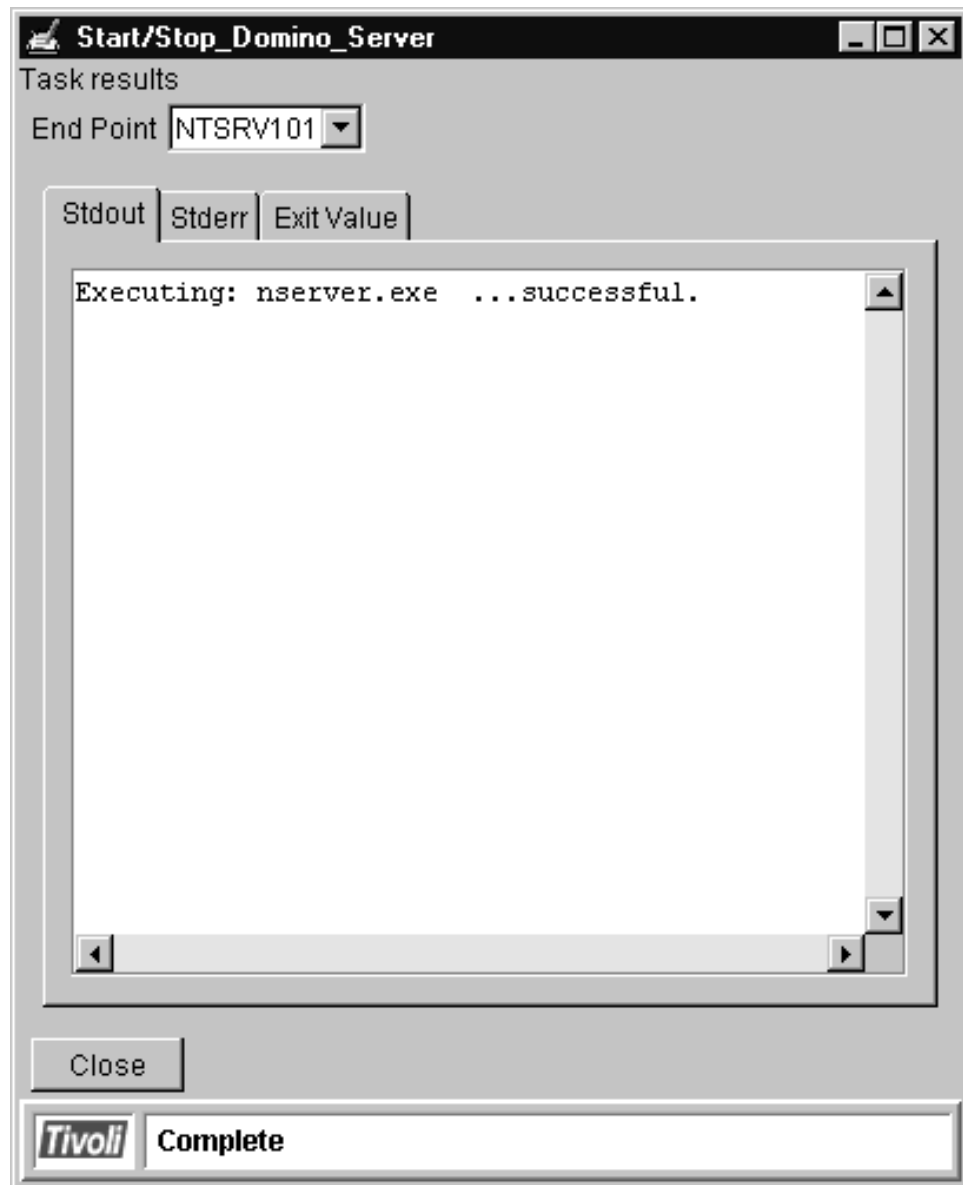


Figure 34. Director Reports the Server Started Successfully

If the server is already stopped and you accidentally execute the stop server command, you will receive an error message telling you that the server is already stopped. But the opposite is not true.



Figure 35. Click OK to Stop the Domino Server



Figure 36. The Domino Server has Stopped

If your Domino server is shut down by using the exit command, the server stops, but the *nserver* task stays active. If the server program (*nserver*) is still active, you will need to stop that process before you can start the Domino server again.

Right click on the Domino server icon and select **Process Management**. Find the *nserver* process and stop it. Once the *nserver* service is stopped, you can once again start the Domino server normally.

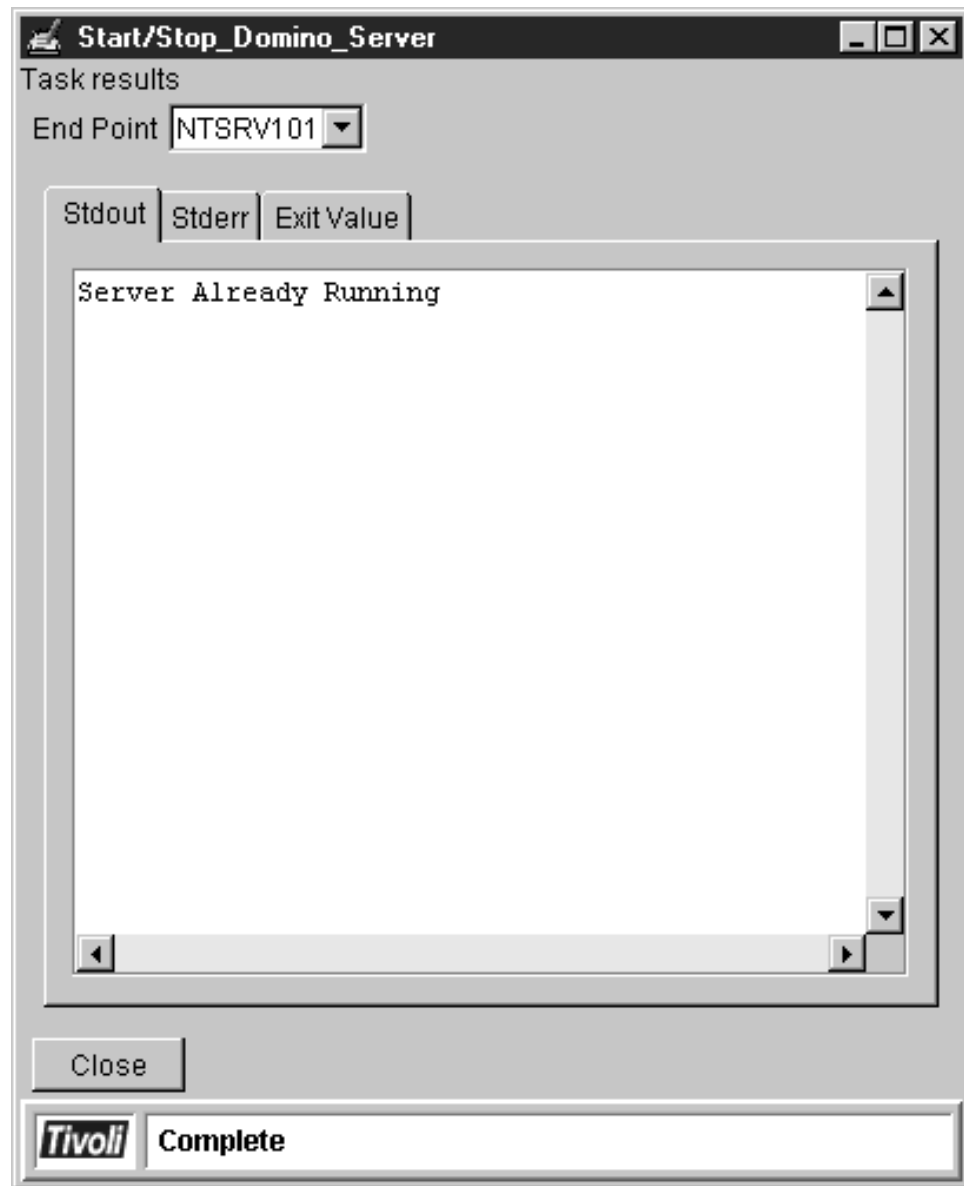


Figure 37. Director Reports that the Server is Already Running

## 2.2.2 Get Domino Server Information

The `Get_Domino_Server_Information` task is useful for reporting basic information about your Domino server. This task is executed by selecting it from the list of Domino tasks (see Figure 27 on page 21).

The details that are returned are:

- Server name
- Domain name
- Version number
- Logging status
- Server status
- Tivoli add-in state
- Event adapter state
- Directory information

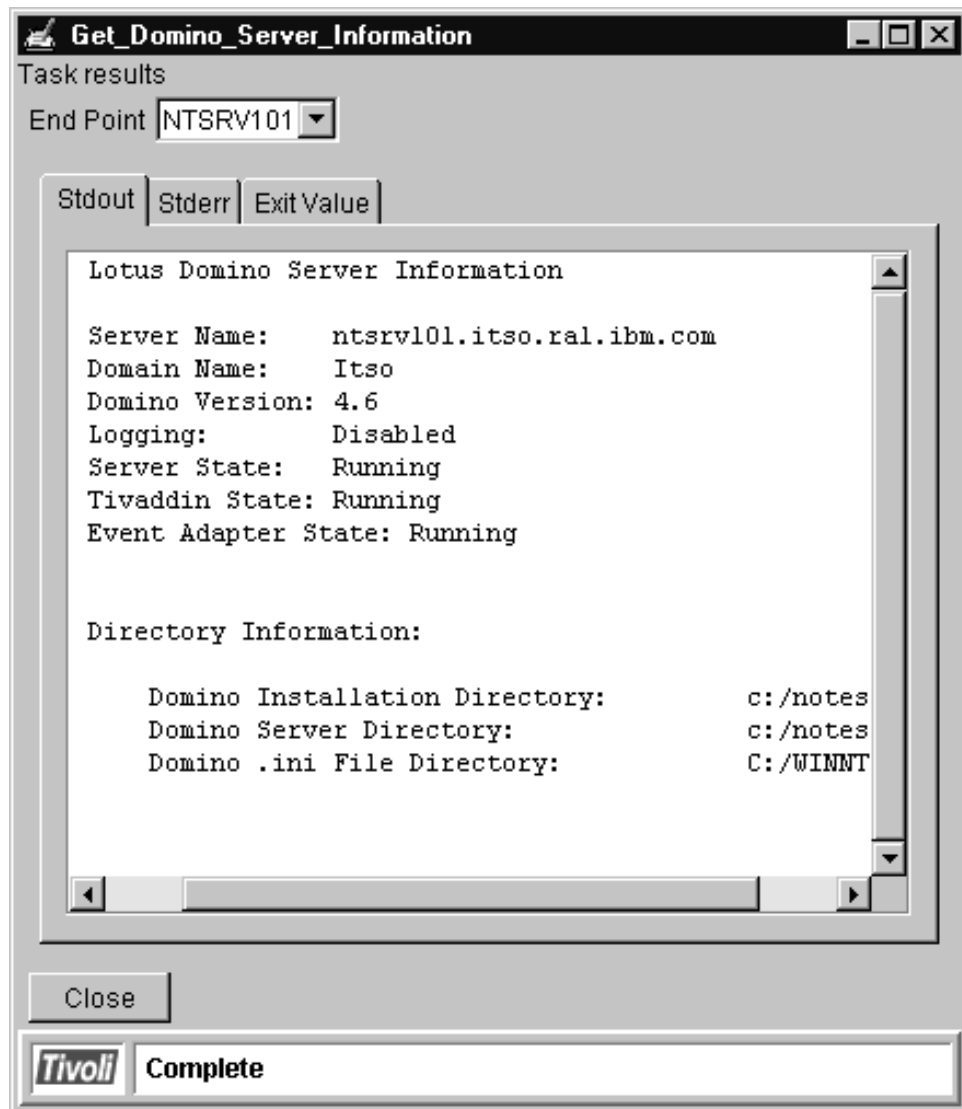


Figure 38. Get Domino Server Information

The Get\_Domino\_Server\_Information task executes immediately after you select it. It is not a task that can be scheduled.

### 2.2.3 Show Domino Users

To show the Domino users, select **Show\_Domino\_Users** from the AMP task options (see Figure 27 on page 21).

The Show Domino Users window will allow you to search for a specific user on the Domino server by specifying the name to look for. You can also retrieve information about all the users on the Domino system. The show Domino Users task can't be scheduled.

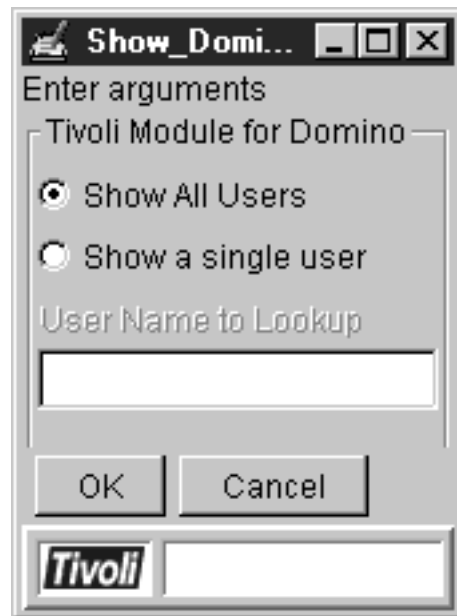


Figure 39. Show All Domino Users

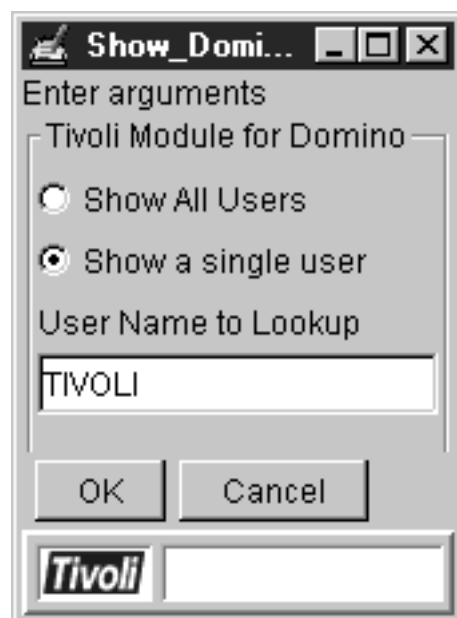


Figure 40. Specify a Specific User

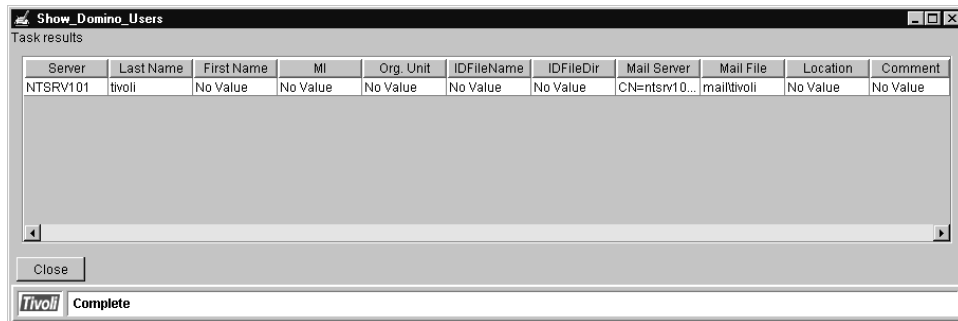


Figure 41. Output for the User Named Tivoli

## 2.2.4 Toggle Logging On and Off

You can schedule the Toggle task, or execute it immediately. The Toggle logging task sets the debug flag on the notes data file to *on*. Executing the task again, will set the flag back to *off*. The notes data file that is modified is located in `\notes\data\log.nsf`.

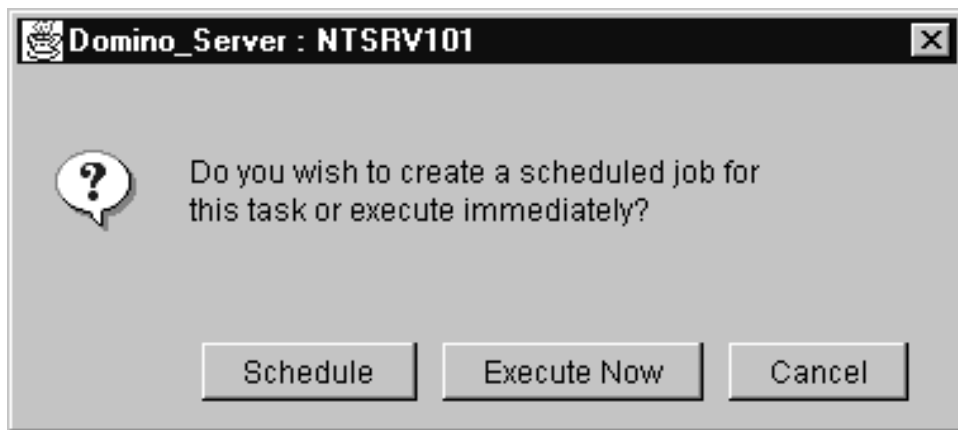


Figure 42. The Logging On and Off Task Can be Scheduled

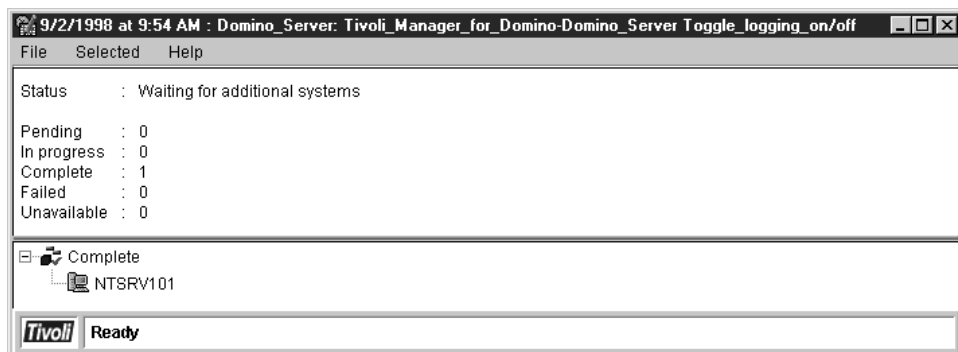


Figure 43. Toggle Set to On - Complete

## 2.2.5 Modify\_Domino\_Users

The Modify\_Domino\_Users task is used for making changes to the public address book of the Domino server. You must first create a new notes registration file with the changes that you wish to make. This registration file must be used as an argument in the task. The fully qualified filename of the certifier ID must be specified as well as the password.

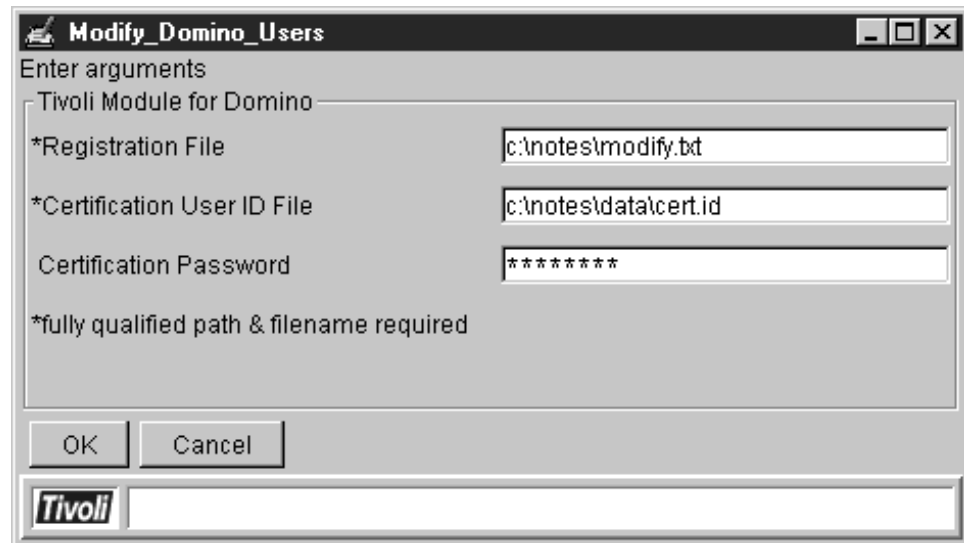


Figure 44. The Modify Users Arguments

**Note:** More details on the registration file can be found at 2.2.8, “Register Domino Users” on page 37.

## 2.2.6 Remote\_Console\_Command

With the Remote\_Console\_Command you can issue a Domino server command to your server from the Tivoli IT Director console. The argument for this task is the command that you would issue at the Domino server console.



Figure 45. Enter a Command to be Executed on the Server

The results of your command are displayed in the task window on completion of the command, as shown in the following window.



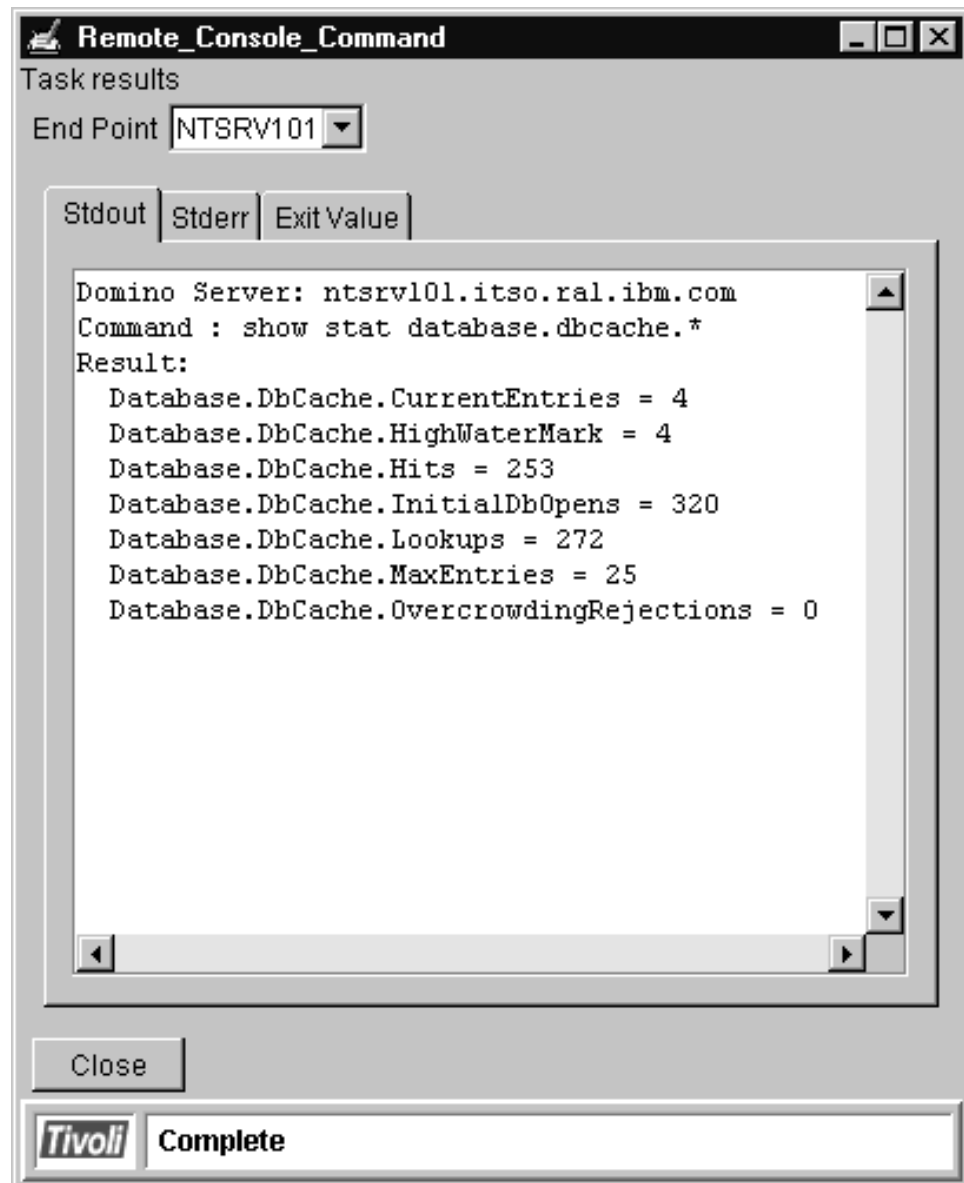


Figure 46. The Output of Your Remote Command

### 2.2.7 Delete Domino Users

This task will allow you to delete a user (or users) from the Domino server address book database.



Figure 47. Delete Domino Users

The arguments that are required here are the same as for the Modify Domino Users task. The registration file must be specified using the fully qualified file path and name. The registration file is a text file containing the first names and surnames of the users to be deleted, separated by a semicolon.

**Note:** More details on the registration file can be found at 2.2.8, "Register Domino Users" on page 37.

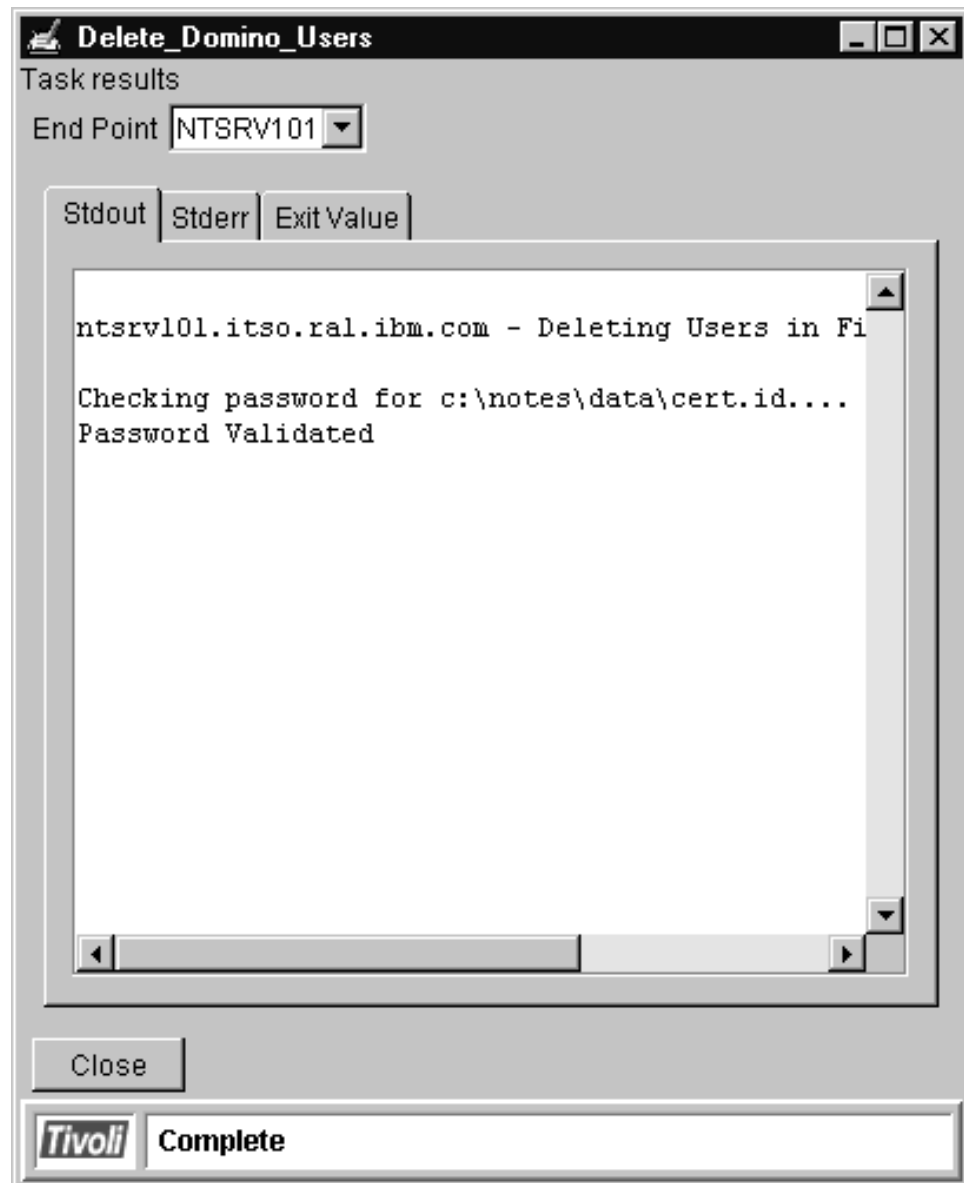


Figure 48. Users Have Been Deleted

## 2.2.8 Register Domino Users

To register a new Domino user you must first create the registration file that will be used as an argument for this task. The registration file is a text file containing the information about the users you wish to create. The information for the users must be in the following format.

```

LastName;FirstName;MiddleInitial;OrganizationalUnit;
Password;IDfileDirectory;IDfileName;HomeserverName;MailFileDirectory;
MailFileName;Location;Comment;ForwardingAddress;ProfileName;
LocalAdministrator.

```

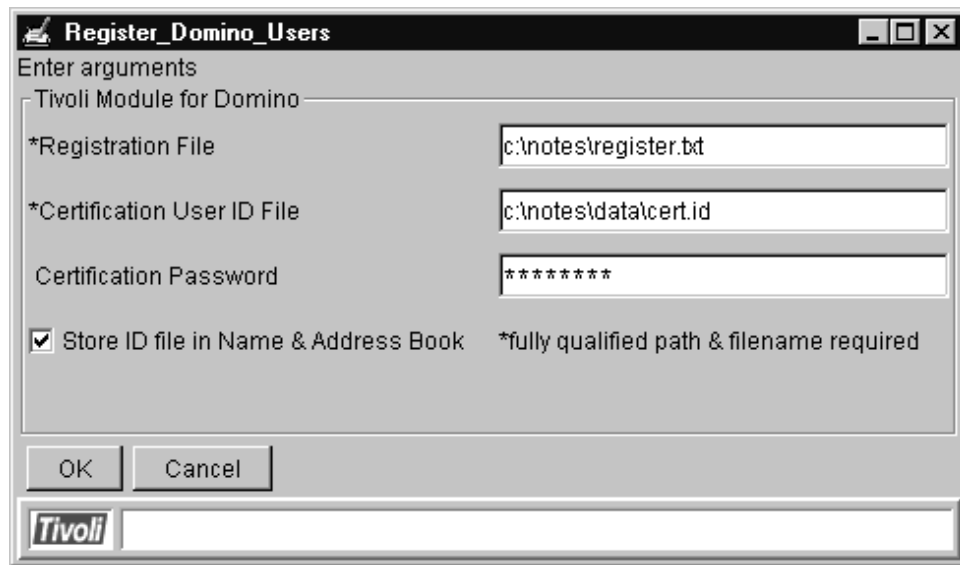


Figure 49. Enter Arguments for Registering a User

The registration file must reside on the Domino server and the fully qualified file name must point to it. You must also supply the path to the certifier ID file and the password for that file. The final option gives you the ability to store the ID file in the Domino name and address book.

## 2.2.9 Show Server Statistics

Using this task, you can view one or all of the statistics for the Domino server.

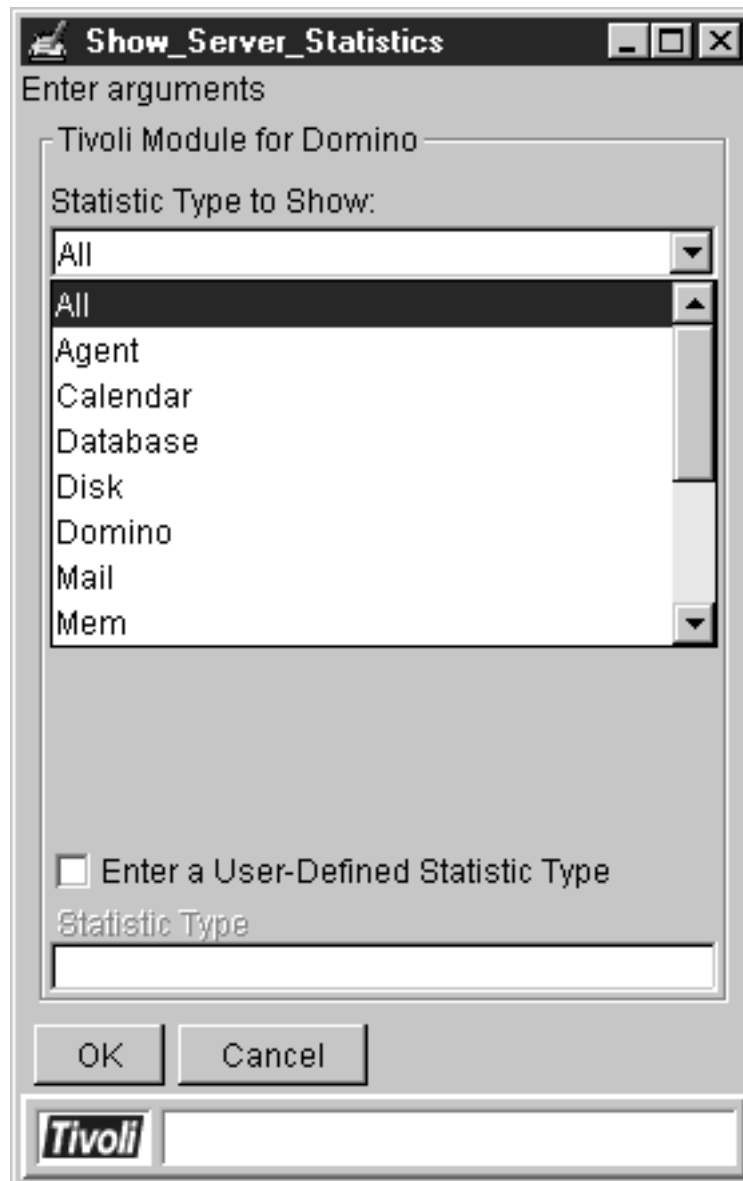


Figure 50. Choose All or One Statistic

The task argument allows you to specify the individual statistic that you would like to view. Viewing all the statistics will return the data in an Windows NT Explorer-type view that you can navigate around in as shown in the following window.

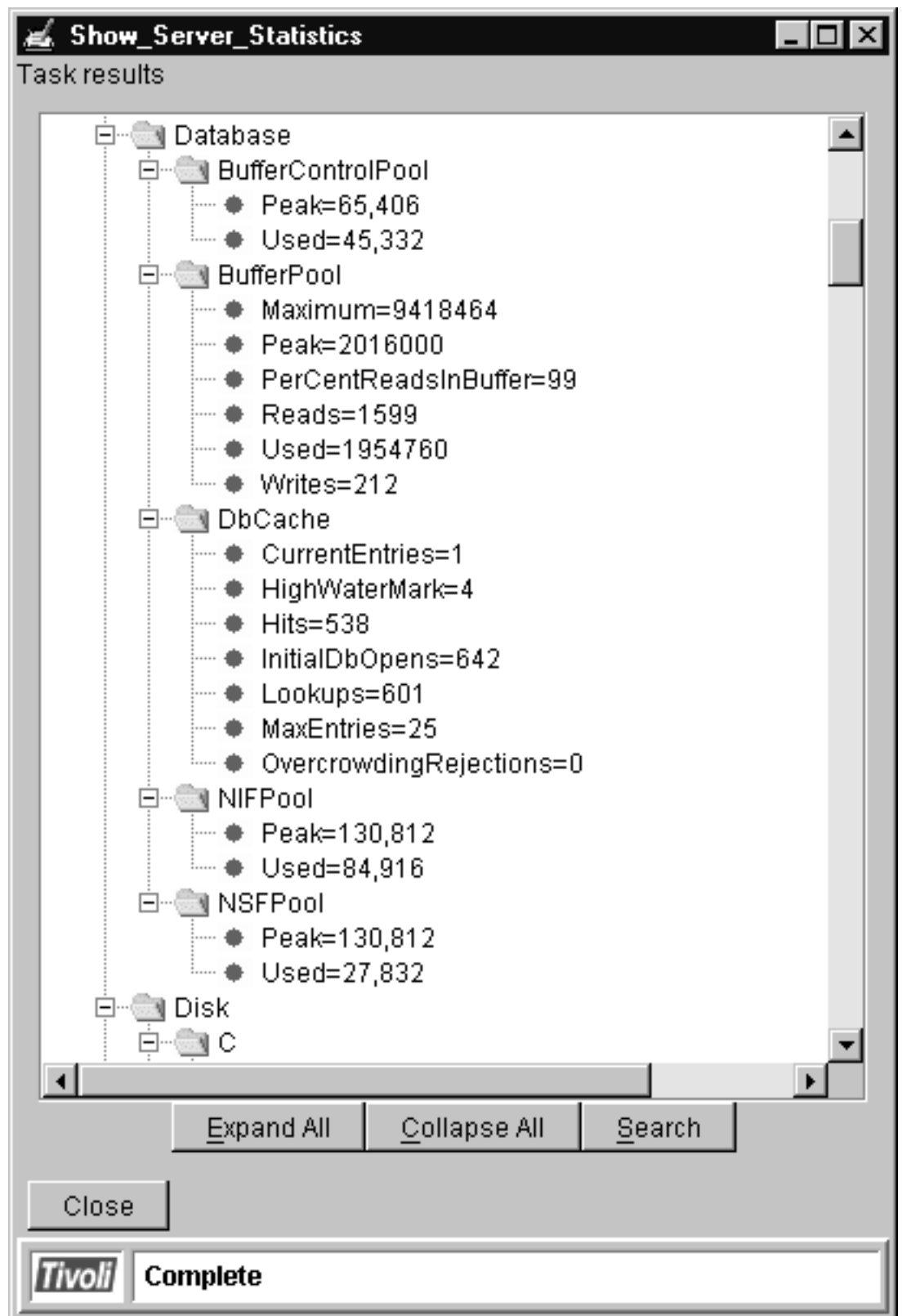


Figure 51. Server Statistics Shown in Explorer View

## 2.2.10 Start and Stop the Event Adapter

Part of the process of configuring your Domino server with the Configure Server task is to add a Tivoli adapter to the notes.ini file on your Domino server. This adapter is called the itd\_adapter or IT Director event adapter. This adapter is used to monitor the Domino server and to report the results of that monitoring to Tivoli IT Director. For performance purposes, at certain times you may wish to stop the event adapter. If the event adapter is already running, the event adapter task will default to *Stop event adapter*. See Appendix B, “Domino Files” on page 227 for the contents of the notes.ini file.

## 2.3 Working with the Domino AMP Monitors

There are basically two ways that you can use the Domino monitors to report information about your server. You could use the application management option from the Director console to open the Domino AMP or you can add thresholds to the monitors in the AMP.

### 2.3.1 Monitoring by Means of the AMP

Figure 52 shows the result of clicking on the Customize Monitors button in the Domino AMP.

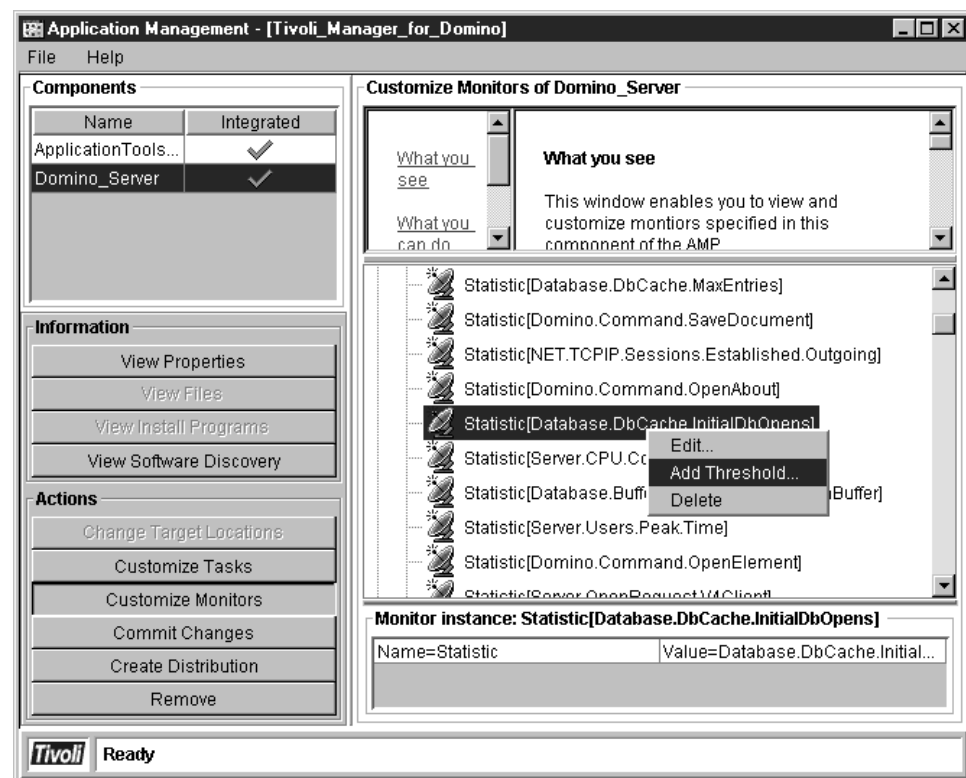
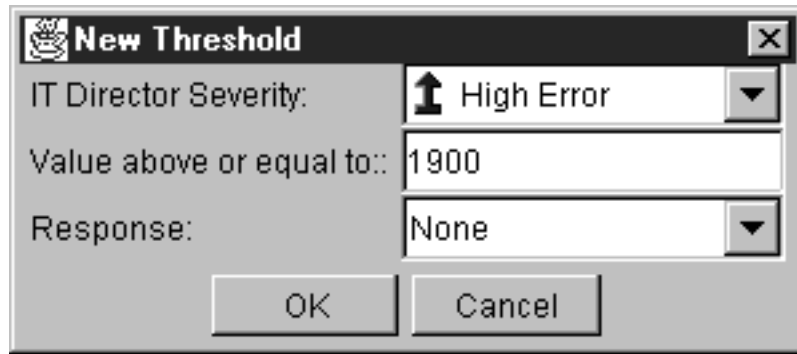


Figure 52. Add Thresholds to the Monitors in the AMP

You can set thresholds for monitors by selecting the monitor you wish to use and by adding a threshold. You do not have to add all the thresholds that you think you might use when you first configure the AMP. You can add thresholds to the AMP monitors at any time. All that you need to do is to make your changes and then commit those changes.

**Note:** When you commit the changes in the AMP, those changes are automatically distributed to all the servers that are running the management file package. If you have more than one Domino server that is managed, you might want to set up different monitor instances for each one.

Right click on the monitor that you would like to modify and select **Add Threshold** as shown in Figure 52 on page 41.



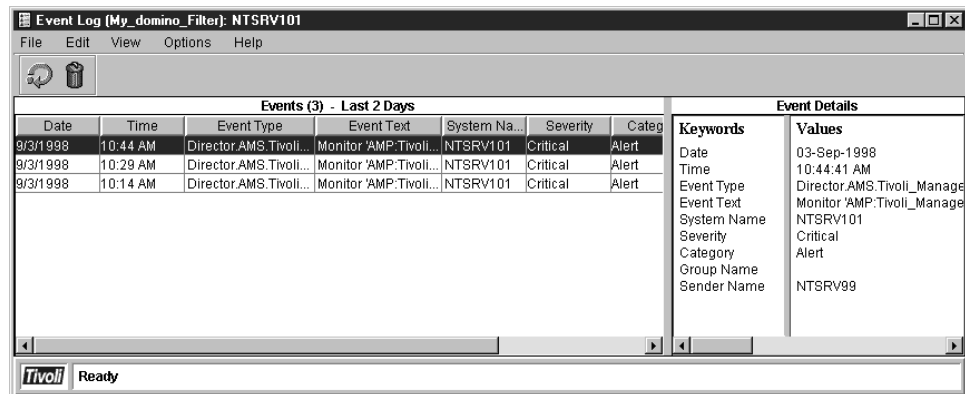
The 'New Threshold' dialog box contains the following fields:

- IT Director Severity:** A dropdown menu with 'High Error' selected.
- Value above or equal to::** A text input field containing '1900'.
- Response:** A dropdown menu with 'None' selected.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Figure 53. Add a New Threshold to the Monitor

You can specify a Domino AMP task to be executed if this threshold is met by configuring the Domino AMP task beforehand. Should you leave the response as none, the error will only be written to the Director log. You could also create an event action plan in Tivoli IT Director that will either alert you when the threshold is met or perform some other event actions.

Once you have added the thresholds to the tasks that you wish to include in your management strategy, you must commit the changes. Once you have committed the changes, those changes are immediately distributed to the machines running the management file package (MFP).



The Event Log window shows a table of events and their details.

Events (3) - Last 2 Days							Event Details	
Date	Time	Event Type	Event Text	System Na...	Severity	Categ	Keywords	Values
9/3/1998	10:44 AM	Director.AMS.Tivoli...	Monitor 'AMP:Tivoli...	NTSRV101	Critical	Alert	Date	03-Sep-1998
9/3/1998	10:29 AM	Director.AMS.Tivoli...	Monitor 'AMP:Tivoli...	NTSRV101	Critical	Alert	Time	10:44:41 AM
9/3/1998	10:14 AM	Director.AMS.Tivoli...	Monitor 'AMP:Tivoli...	NTSRV101	Critical	Alert	Event Type	Director.AMS.Tivoli_Manage
							Event Text	Monitor 'AMP:Tivoli_Manage
							System Name	NTSRV101
							Severity	Critical
							Category	Alert
							Group Name	
							Sender Name	NTSRV99

Figure 54. The Director Event Log

Thresholds that are met are added to the Tivoli IT Director Event Log as shown in Figure 54.



### 2.3.2 Monitoring by Means of the Resource Monitor

The other way of monitoring your Domino server is to use the resource monitor and Event Action Plan functions in Tivoli IT Director. The advantage of using the resource monitor is that you have more control of when your server is using monitors. Running monitors on a server takes processing power and the more monitors you have active on a machine the less processing power is available to perform the actual computing.

**Note:** Be careful not to overload the server with unnecessary monitors, especially if those monitors are not critical to the operation of the server.

To use the resource monitors, select your Domino server from the Director console and right click with your mouse. Select the resource monitors option as shown in the following window.

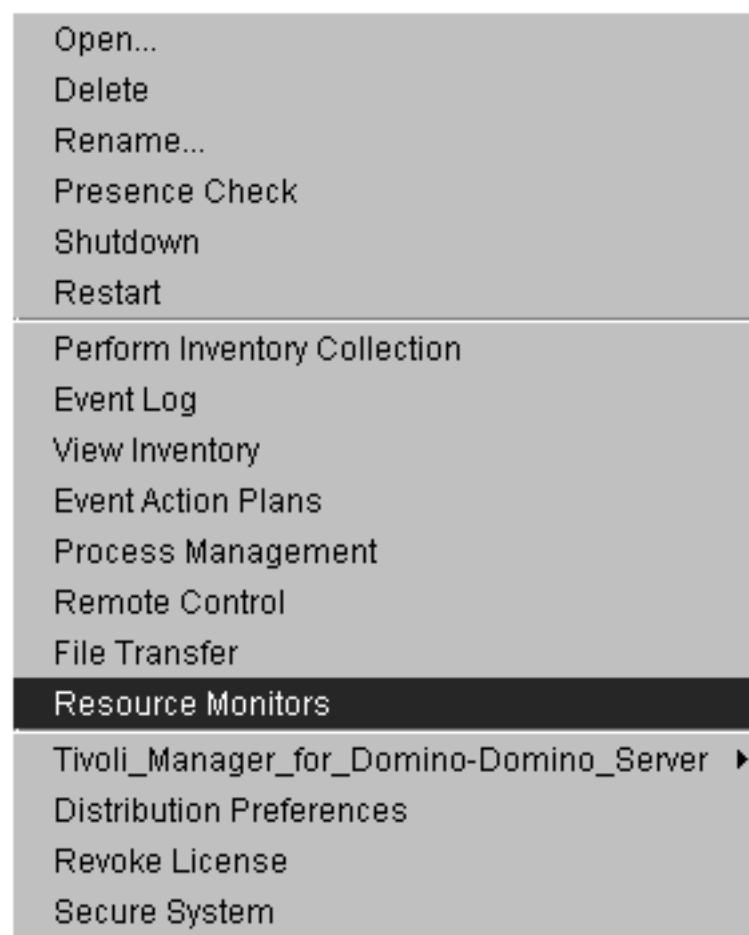


Figure 55. Select the Resource Monitor Option

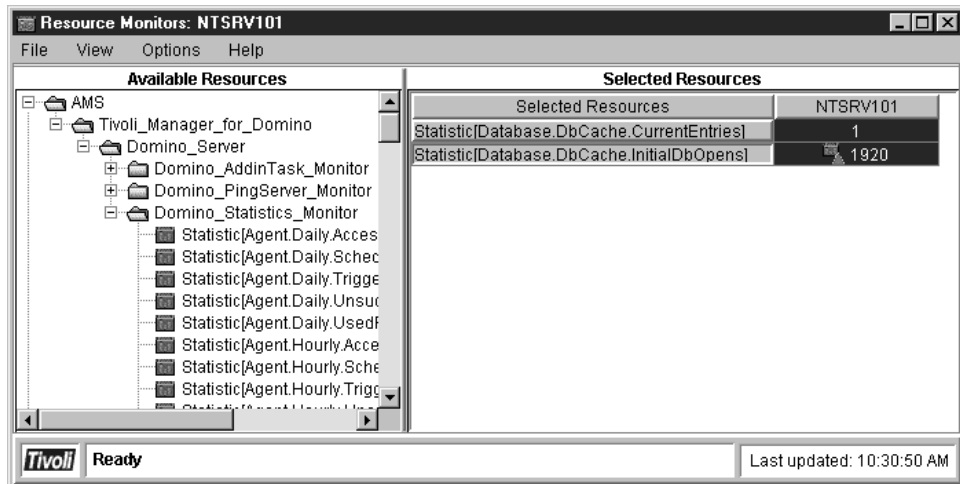


Figure 56. Monitor Using the Resource Monitors

When you distributed the MFP to the Domino server, the monitors for the Domino server were also added to the resource monitors of Tivoli IT Director. In Figure 56 you can see the Domino monitors in the left pane under the parent directory of AMS. In the right pane you can see two resources already active and being monitored. To start monitoring a resource, simply locate the resource that you wish to monitor in the left hand pane of the resource monitor and click or drag it onto the Selected Resources panel. The new resource will immediately activate and start collecting data. Once the data has been collected the results will be displayed in the space next to the resource name. The Resource Monitor window is updated automatically every 15 seconds. You can monitor the resources while the window is open. However, if you want to make the monitored resources part of an event action plan, you will have to add thresholds to the resources and save your changes.

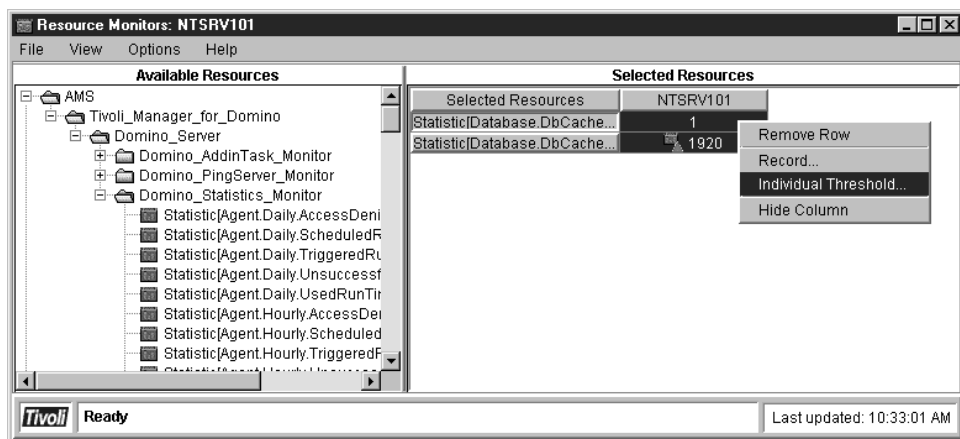


Figure 57. Add a Threshold to the Monitor

To add a threshold to the monitor, right click on the resource and select **Individual Threshold**. The option is *individual* because the threshold will only be valid for the particular resource that you are monitoring (see Figure 57). If you had selected a group of agents, you would have the option of setting a group threshold.

The System Threshold window (shown in Figure 58 on page 45) is a little more interesting to look at than the threshold you can add to the monitor in the AMP (see

Figure 53 on page 42). You must supply a name for the threshold and you can supply a description. Click the **Enabled to generate events** check box if you want the threshold to be able to generate an event when the threshold is met.

Figure 58. Setting up a Threshold for the Monitor

The Minimum Duration and Resend Delay fields indicate how long the error must occur before the error is reported and how long between error messages. The above and below or equal arguments can be used separately or together. For example, you can have the monitor warn you when a threshold is high and also report an error if the threshold hit is low.

Should you add a threshold to a monitor while configuring the AMP (see Figure 52 on page 41), the threshold will automatically become available as a threshold as shown in the following window.

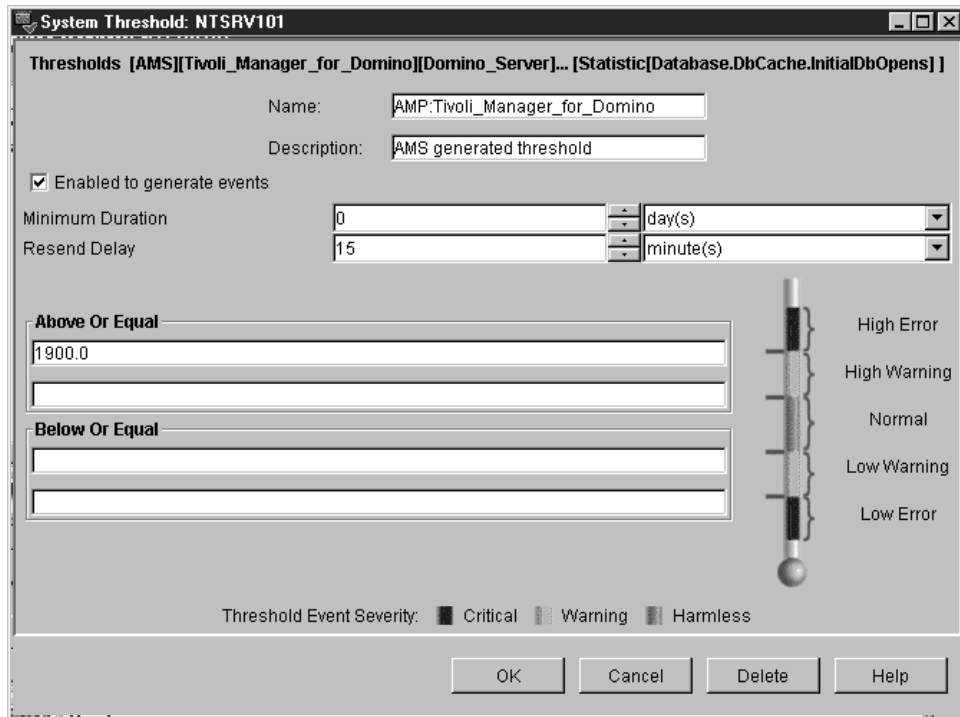


Figure 59. Threshold Pre-Configured by the AMP

Once you have added the monitors that you wish to use as part of the event action plan, you need to save your changes. You can create multiple instances of saved resource monitors, each with their own thresholds, that can be used on one or many servers.

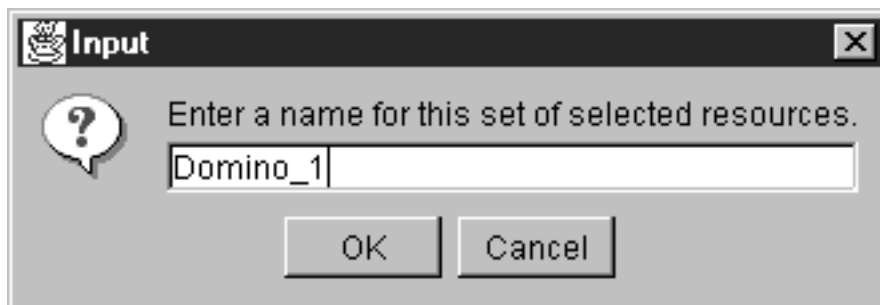


Figure 60. Save your Changes

The set of resource monitors that you have saved should now appear as a subordinate of the Resource Monitor Task in the Tasks pane of the Tivoli IT Director console as shown in the following window.

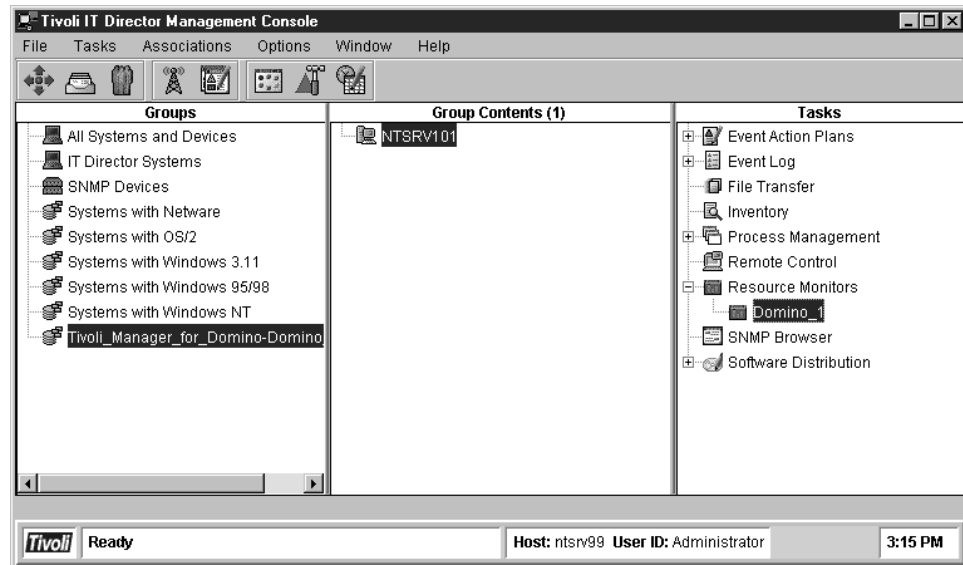


Figure 61. Saved Resource Monitors Added to Console

You can now make this saved set of resource monitors part of an event action plan.

## 2.4 Using the Event Action Plan

When something goes wrong with your server, or even if there is a chance that your server may be experiencing problems, you would like to know about it. The Event Action Plan Builder gives you the opportunity to put the monitors and thresholds that you have configured into practice.

The Event Action Plan Builder allows you to specify which conditions you would like to monitor, on which machine, should something go wrong. For example, you can configure an event action plan that will start a ticker on the Tivoli IT Director console notifying you of a threshold that has been met or exceeded. But should you be away from your desk, you can also have the event action plan send an alert to your pager.

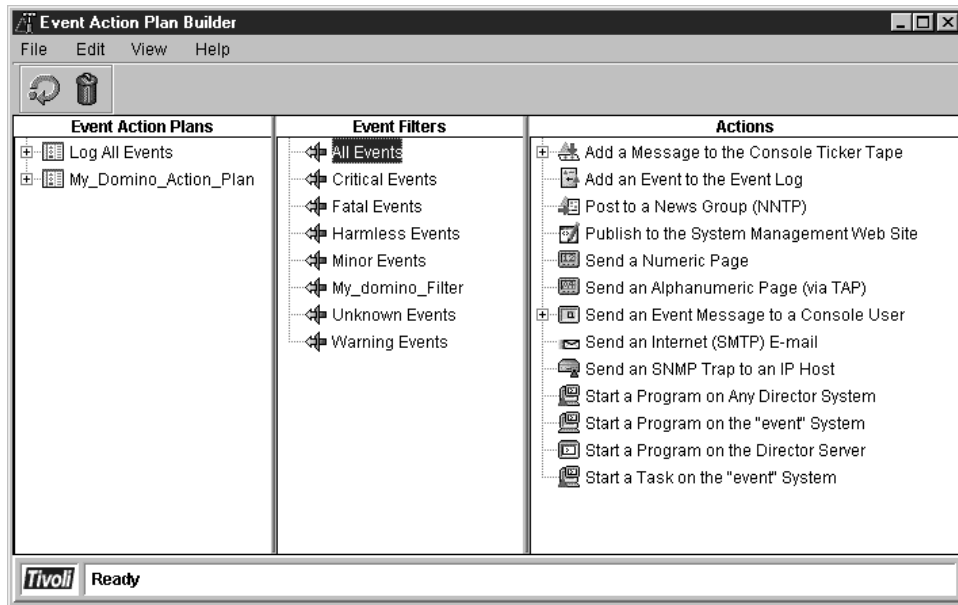


Figure 62. The Event Action Plan Builder

To begin building an event action plan, select the **Event Action Plan Builder** icon on the Tivoli IT Director console.

You need to create an event filter that will be used as the foundation for your event action plan. The filter will contain the information for what is to be managed and the thresholds associated with them. Select either **File - New - New event filter**, or right click anywhere in an open section of the event filter panel.

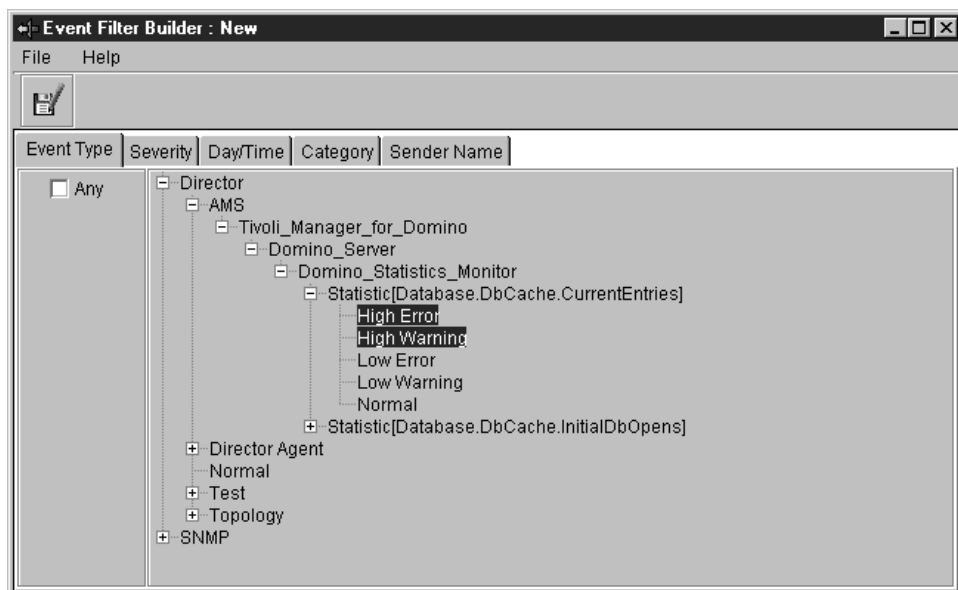


Figure 63. Select the Event Types that you Want to Monitor

Once you have opened the new filter window, shown in Figure 63, you can specify the events to be filtered. Unselect the **Any** check box. The thresholds that you configured for use with the Domino server will be located under the Director/AMS section of event type. Select the events by pressing the CTRL key and clicking on

the options. You can also specify the Severity, Day/Time, Category, and Sender Name for the events by selecting the appropriate tabs (see Figure 63).

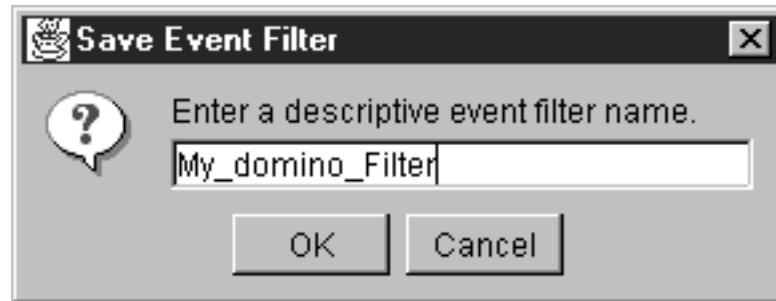


Figure 64. Save the Event Filter

Once you have entered your selections you will need to save the changes. Enter a name for your filter and select **OK** to save the changes.

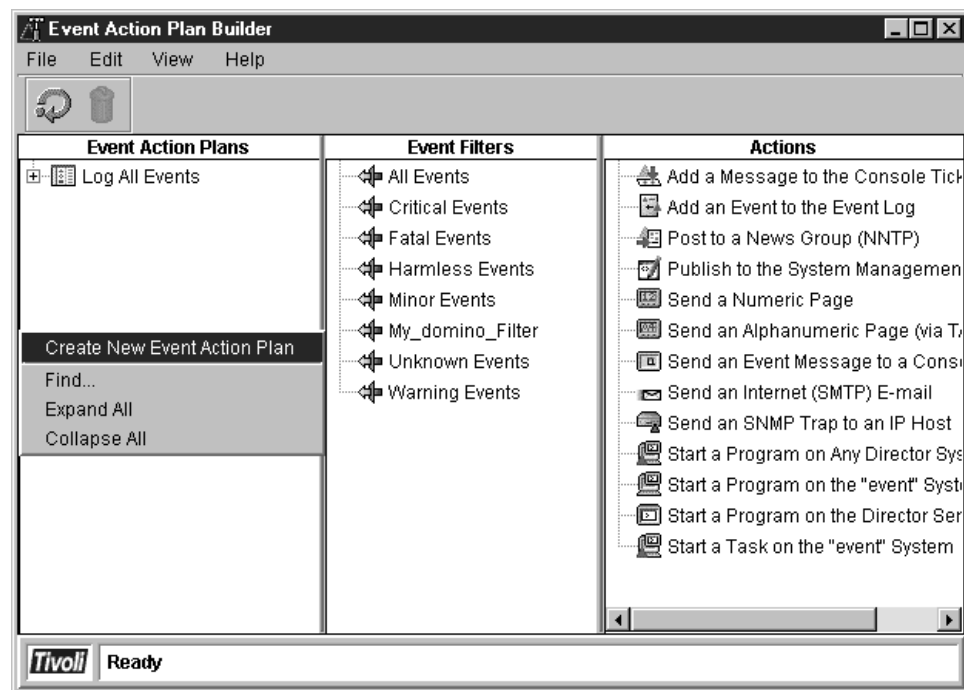


Figure 65. Create an Event Action Plan

The next step in creating the action plan is to create an action plan that will host the event filter that you have created. Right click in an open area of the Event Action Plans pane and select **Create New Event Action Plan** (see Figure 65). Name the action plan and click on **OK** to create the action plan. The new action plan will immediately appear in the Event Action Plan pane.

The next step is to associate the event filter with the event action plan that you have created by dragging the filter onto the action plan as shown in the following window.

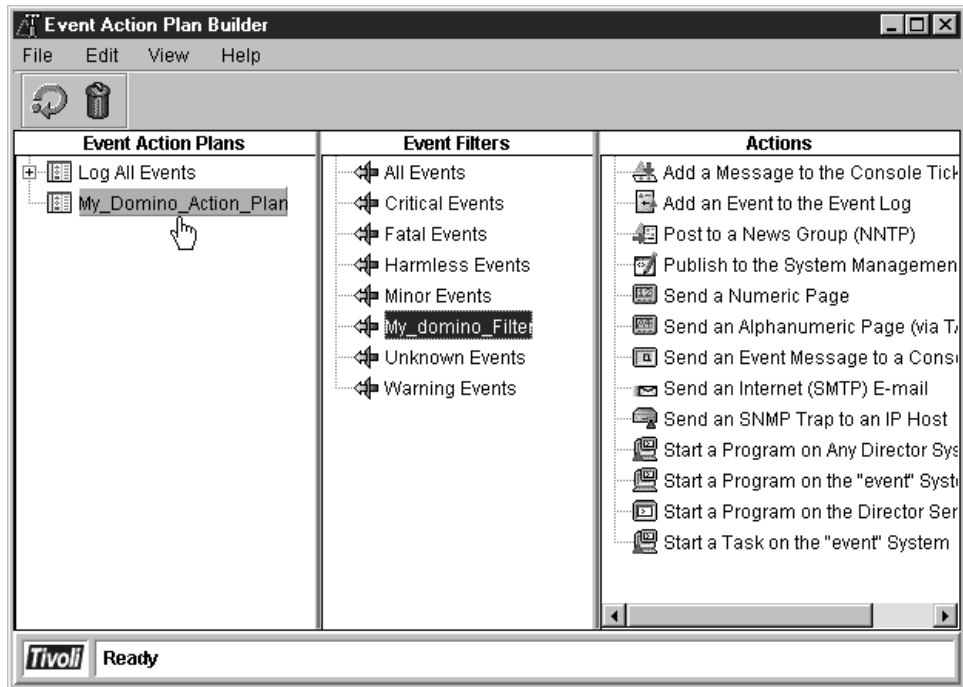


Figure 66. Drag the Filter Onto the Plan

Finally, you need to tell the event action plan what to do in the event that a monitor exceeds a threshold. Tivoli IT Director offers actions that can be executed by the event action plan. The actions that can be performed are:

- Adding a message to the console ticker tape
- Adding an event to the event log
- Post the message to a news group
- Post the message to the Web Director page
- Send a numeric page
- Send an alphanumeric page
- Send message to the console user
- Send the message via e-mail
- Send the message to an SNMP host via trap
- Start a program on either the event system, the Director server, or any other system
- Start a task on the event system

In Figure 67 on page 51 we chose the ticker tape alert as one of our preferred means of notification. The message argument is what will be displayed on the ticker tape when an error occurs. You should try to stick to some sort of naming convention when naming the actions, because you would like to know exactly which machine it is and also what the problem might be.



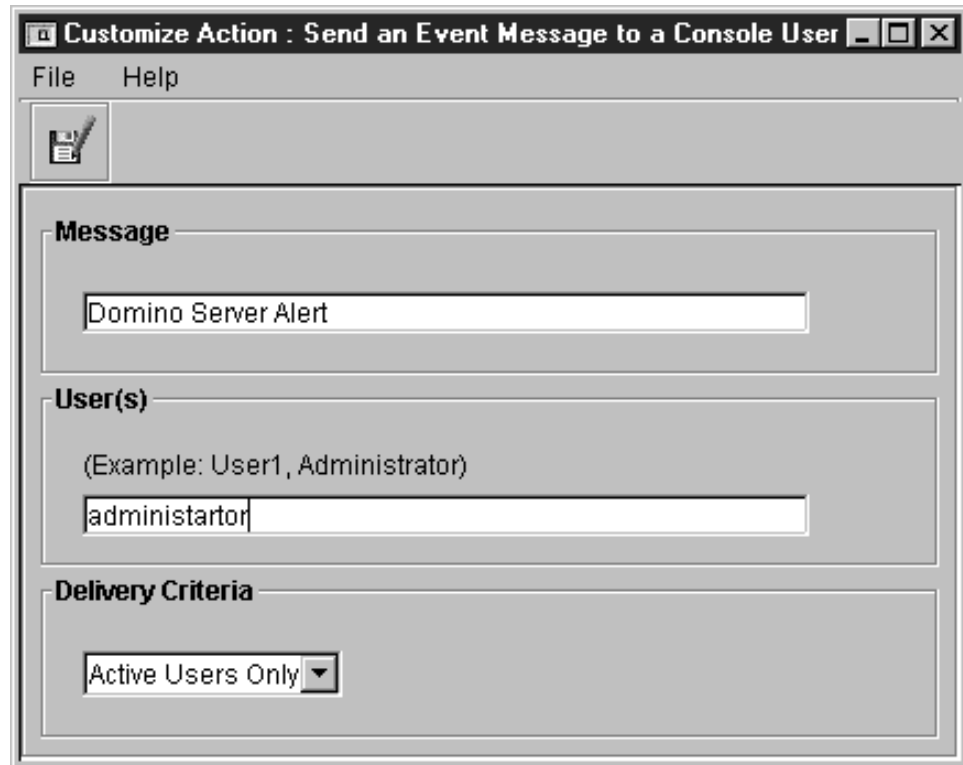


Figure 67. Customize the Action you Would Like to Use

The User(s) field is the name of the user who should get the alert. If you have more than one system administrator, enter the user name of the person responsible for the Domino servers in your organization. The Delivery Criteria field allows you to specify if the alert should initiate only if the console is active or if it can notify you when you next log onto the system.

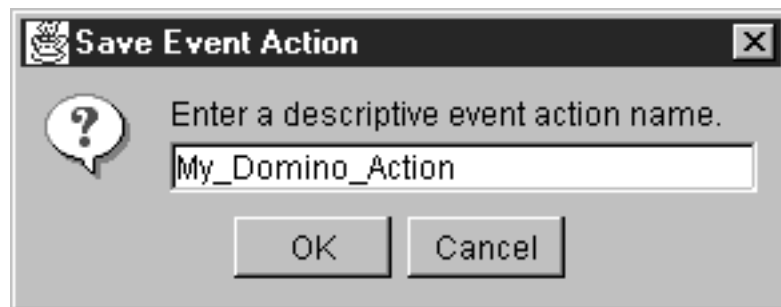


Figure 68. Save the Action

After you save the event action it will show up in the Actions pane under the *Send an Event Message to a Console User*. That is just another way of saying ticker tape.

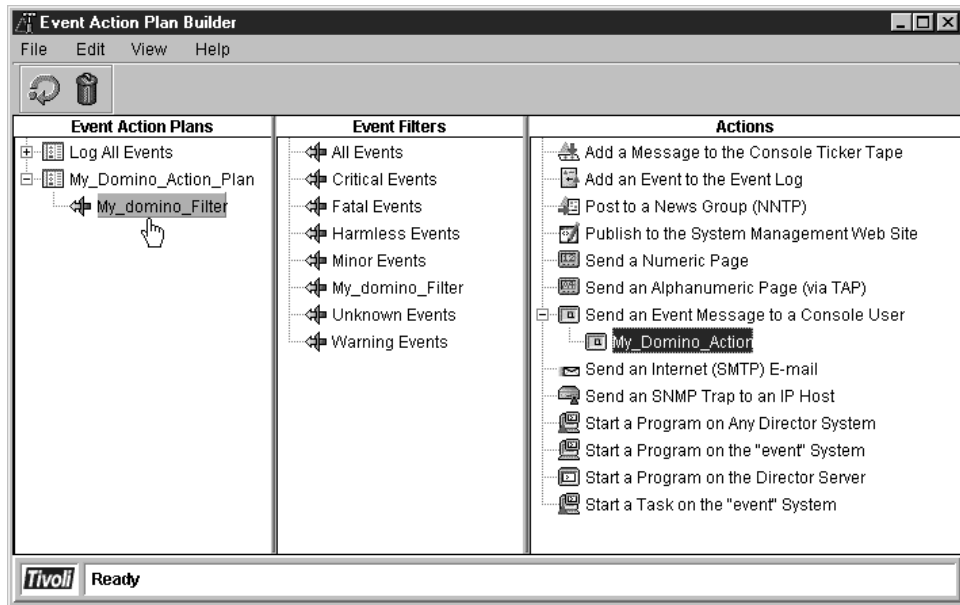


Figure 69. Drop the Action Onto the Filter

If you look at the bottom of Figure 70 you will see the message Domino Server alert, which is the message that we had set up in Figure 67 on page 51.

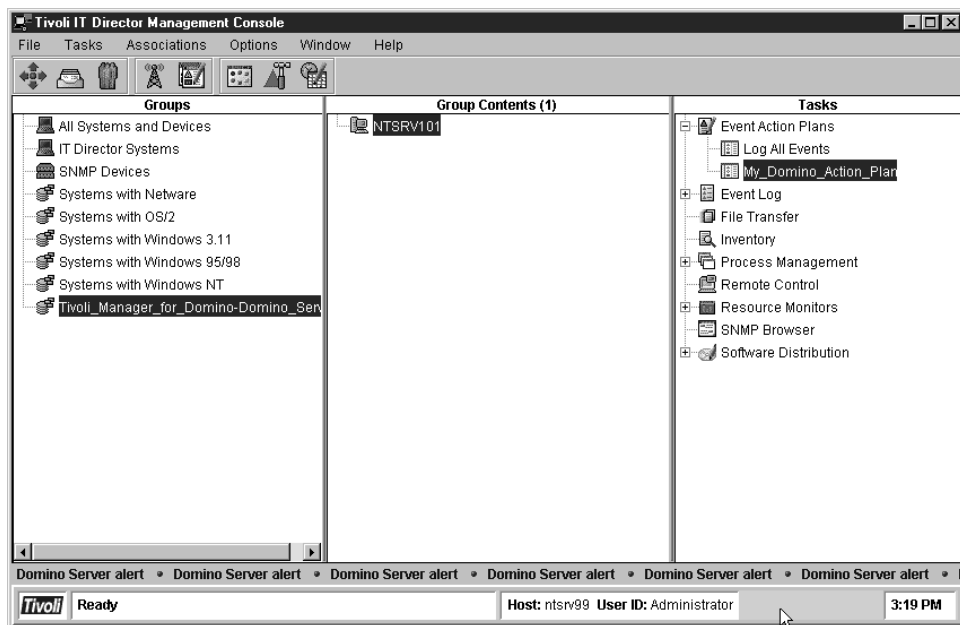


Figure 70. Action Plan has Been Added to the Console Group Tasks

If you look in the event log you will see the Domino server alerts that have occurred. You will also see the fact that the ticker message was started.

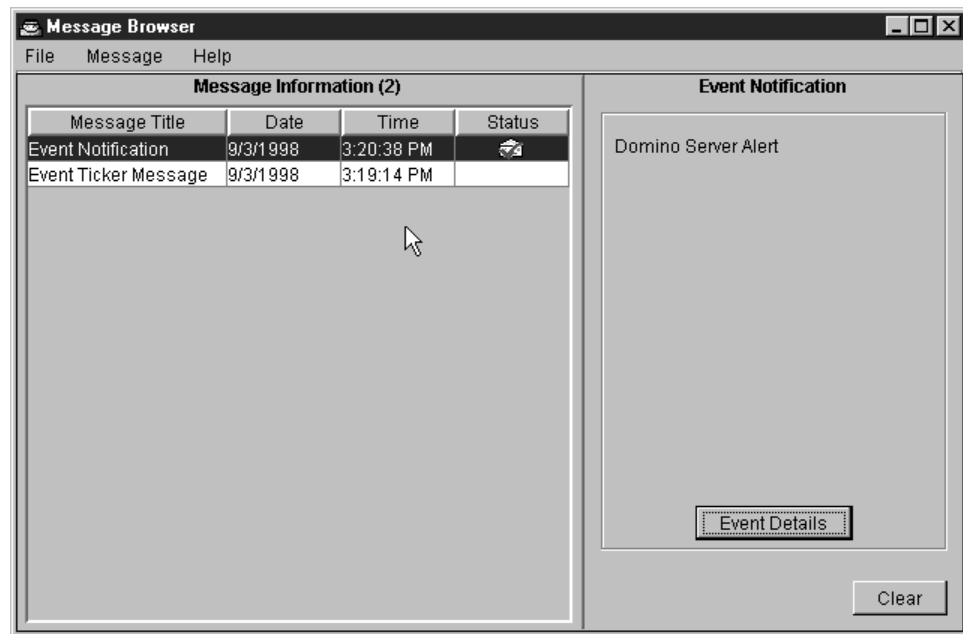


Figure 71. Error Event Notification



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## Chapter 3. Netscape Applications Management

This chapter provides examples of the applications management functions that are implemented for use with Tivoli IT Director using Tivoli's Applications Management Specification (AMS). A software package created with the AMS standard in mind is called an application management package (AMP).

In this chapter we show how to use and customize Netscape Suitespot using the Netscape Suitespot AMP that was already imported into Tivoli IT Director. That AMP gets pre-installed during the installation of the Tivoli IT Director base product. This chapter takes a close look at the Netscape Enterprise Server V3.5.1 and Netscape Proxy Server V3.5. We explain the different tasks you can perform on these servers using Tivoli IT Director. We also explain and recommend which monitors to use and what are important functions that should be tracked on these servers.

---

### 3.1 Customizing Netscape Suitespot AMPs

Since the Netscape Suitespot AMP is already imported, all you have to do is customize it. You can find the AMP under `\TivoliWg\amps\netscape.amp`.

With the Netscape Suitespot AMP you can manage several Netscape applications:

- Netscape Enterprise Server V3.5.1
- Netscape Enterprise Server V3.5
- Netscape Proxy Server V2.5
- Netscape Proxy Server V3.5

In this chapter we worked with Netscape Enterprise Server V3.5.1 and Netscape Proxy Server V3.5.

Following are the details on how you begin to customize the Netscape Suitespot AMP. You begin by starting up the Tivoli IT Director console interface.

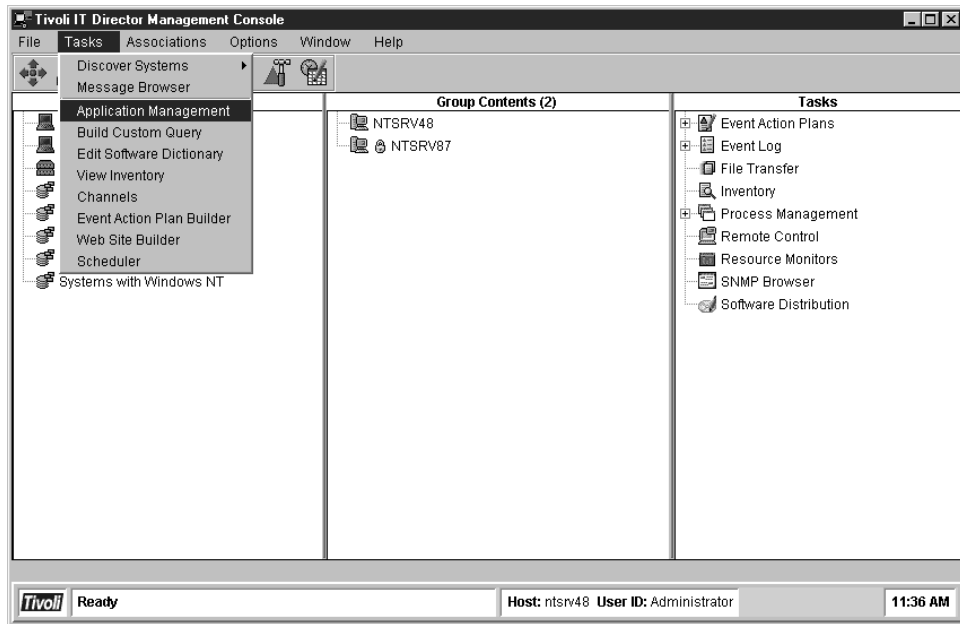


Figure 72. Application Management

Select **Tasks** and then **Application Management** from the Tivoli IT Director console or you can click on the **Applications Management** icon. That brings you to the following window.

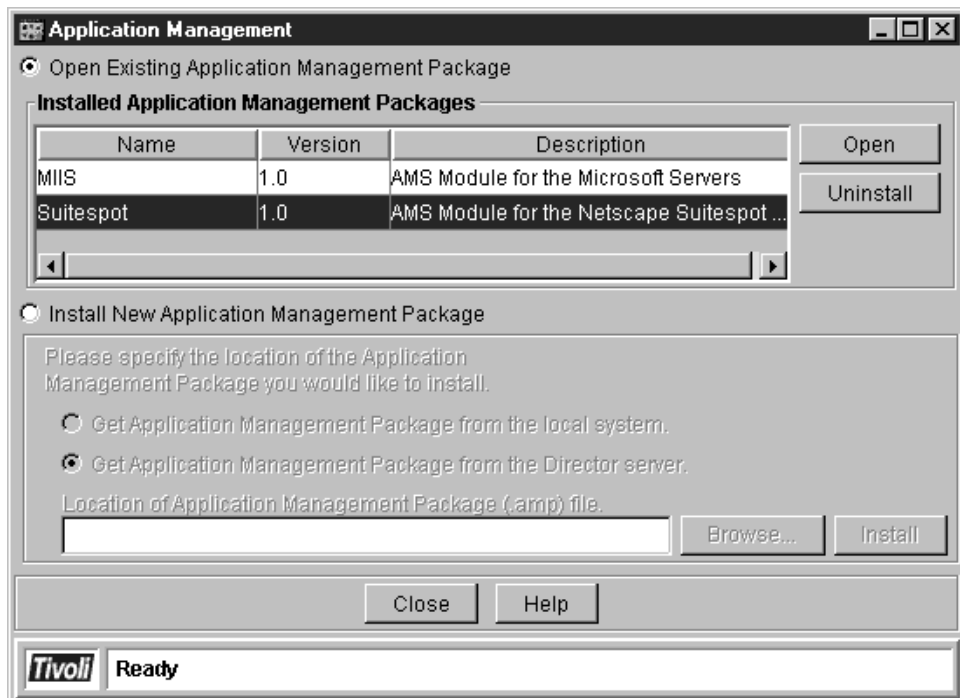


Figure 73. Application Management Console Interface

As you can see in Figure 73 the Microsoft and Netscape AMPs are already preloaded for you. You will see in the other chapters that you need to manually load some of the newer AMPs: Domino, Exchange and SQL if you have purchased those features.

For Netscape servers click on **Suitespot** and then click on **Open**.

Once the AMP is initialized, you will see the window shown in Figure 75 on page 58. First we briefly explain the action buttons in the left-hand corner of Figure 75 on page 58.

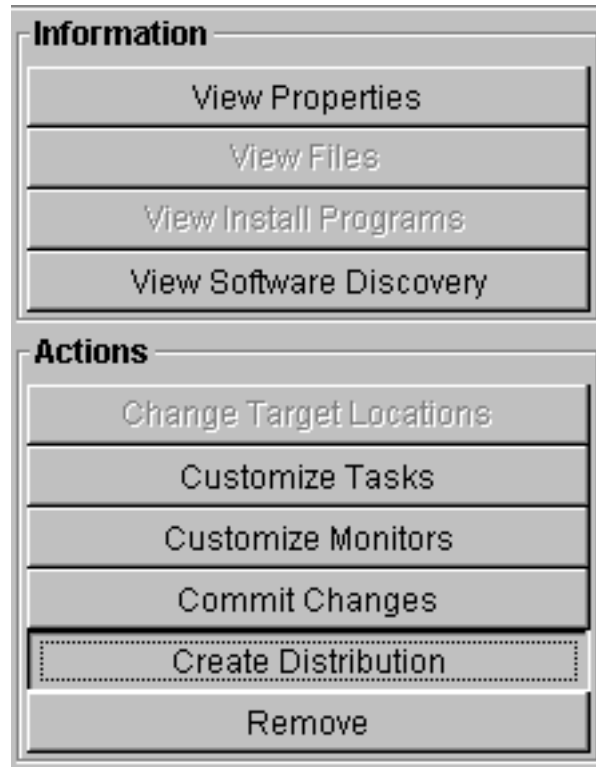


Figure 74. AMP Configuration Options

The different applications management related tasks that can be performed using an AMP are:

- *Change Target Locations* - Gives you the option to specify where the distributed files are to be located. For a remote system to be manageable you will, most of the time, copy some files to the remote system. These files are typically command files (CMD), executable files (EXE) or batch files (BAT). The default directory for files to be distributed from Netscape Suitespot that are related to Tivoli IT Director is \InetAMP.
- *Customize Tasks* - Here you can define special tasks that will be performed frequently. To read more about this go to 3.1.1.1, "Customize Tasks" on page 59.
- *Customize Monitors* - If monitors are provided in the AMP, you can create specific monitors with individual thresholds. A task can be customized to be run when the threshold is reached. It is not possible to create new monitors in the Netscape Suitespot AMP. To read more about this go to 3.1.1.2, "Customize Monitors" on page 64.
- *Commit Changes* - To save all the changes, you press this button. That saves all tasks and monitors that have been customized. You can make more changes and then save them by pressing the **Commit Changes** button again. To read more about this go to 3.1.1.3, "Commit Changes" on page 69.

- *Create Distribution* - After a component is committed this button becomes active. To make your remote system manageable, you need to create a management file package by clicking on **Create Management File Package**. When the task and monitor distribution is successfully applied to a client system that system becomes manageable. To read more about this, go to 3.1.1.4, “Create Distribution” on page 70.
- *Remove* - This removes the component you have selected.

Tivoli IT Director logs most of your actions in the directory \Tivolitwg\Log and they are best viewed using the Tivoli IT Director console.

### 3.1.1 Netscape Enterprise V3.5.1 AMP

In Netscape Enterprise Server, administrators can use tools to manage users, groups, security features and configurations as well as to plan capacity requirements and monitor activity in real time.

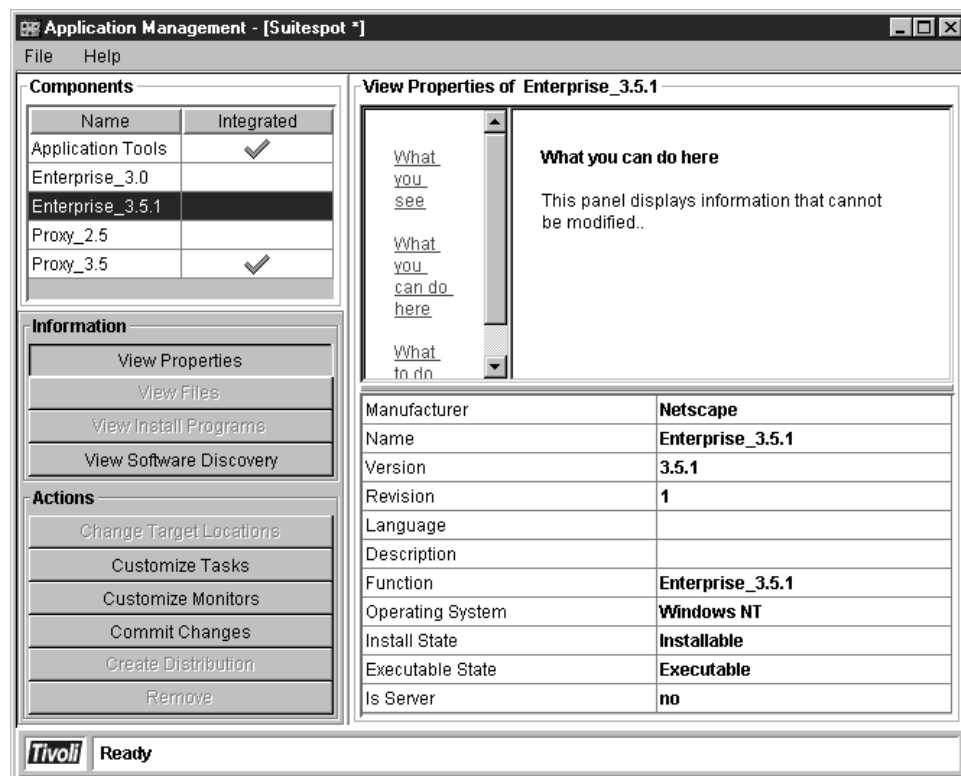


Figure 75. Choose Component

Here you have a choice of which component you can install. In Figure 75 you can see information about the application you selected. The information is in the lower right-hand corner of the window for the component that you selected.



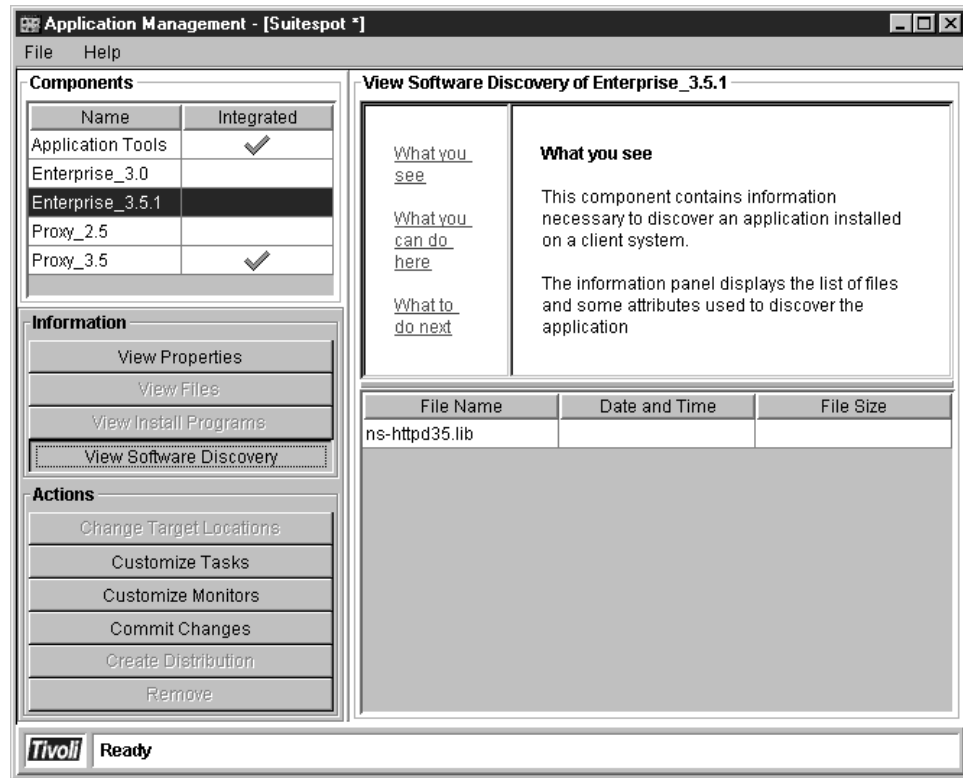


Figure 76. View Software Discovery

In Figure 76 you can see which file the Software Inventory function will be looking for to determine if this particular program is installed or not (ns-httpd35.lib).

### 3.1.1.1 Customize Tasks

You are now ready to customize some of the tasks in the AMP.

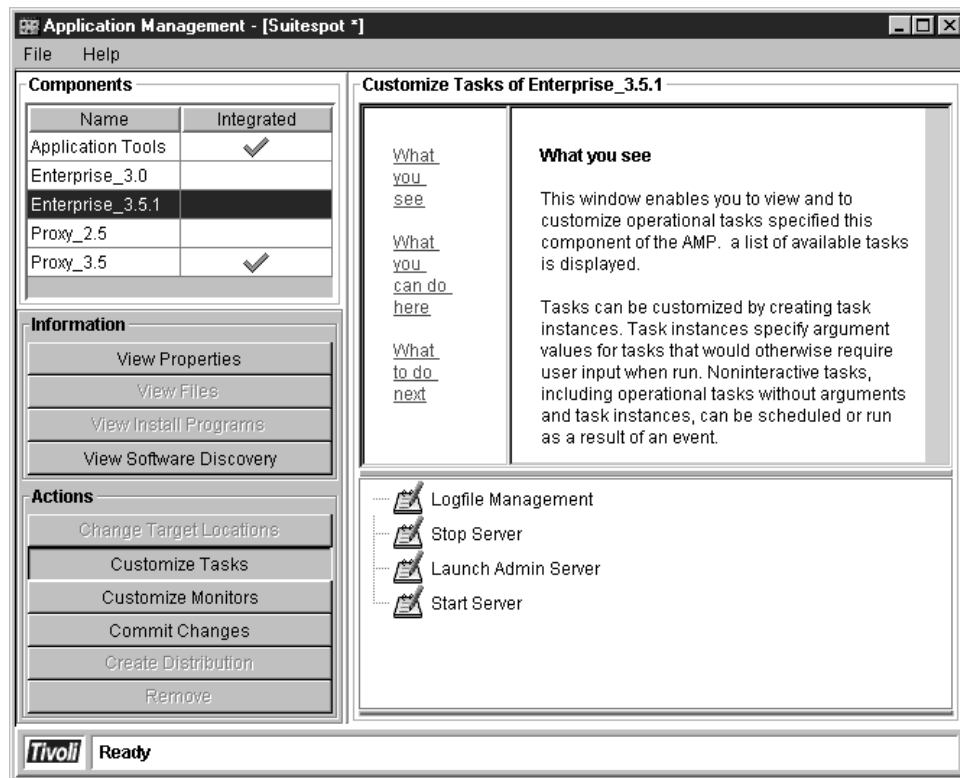


Figure 77. Customize Tasks

**Note:** Nothing is saved or changed until you click on **Commit Changes**. To see what is changed look in 3.1.1.3, “Commit Changes” on page 69.

Click on the **Customize Tasks** button. You will see the tasks related to the AMP in the lower right pane:

- Logfile Management
- Stop Server
- Launch Admin Server
- Start Server

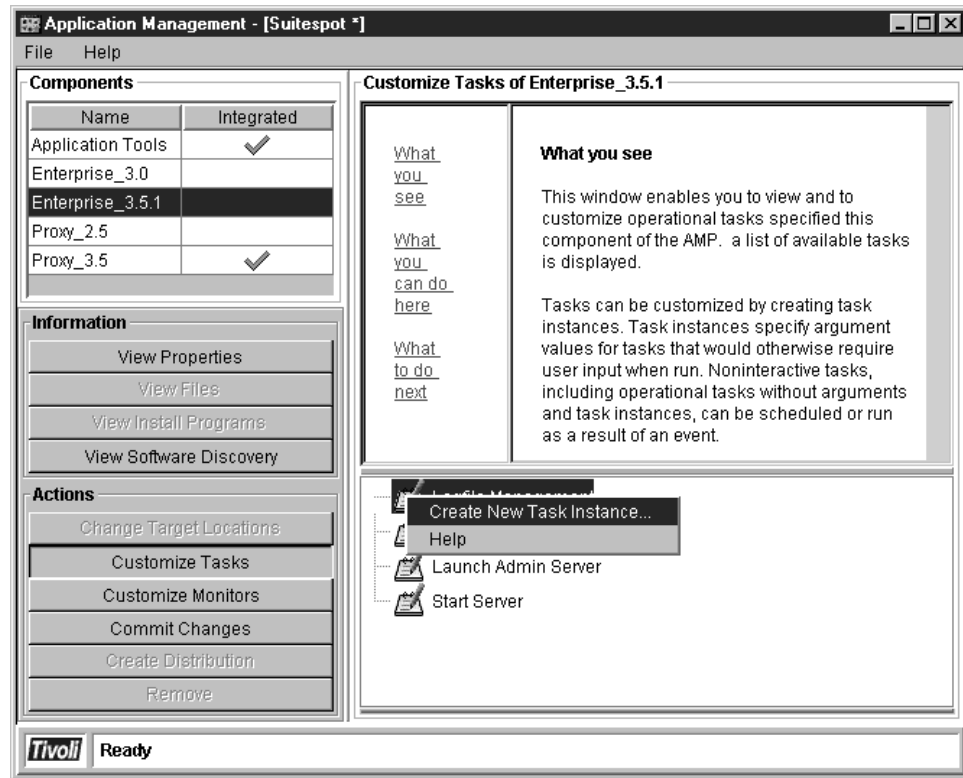


Figure 78. How to Create a New Instance

As shown in Figure 78, if you right click on **Logfile Management** you can then select **Create New Task Instance**. This gives you the option to create a task that you will use often for your logfiles. A typical example would be to do an Archive instance of your log. You would then save it to a file server in your network that is backed up on a regular basis. All this could be done automatically and a similar example is shown in 3.1.2.4, “Working Examples” on page 83.

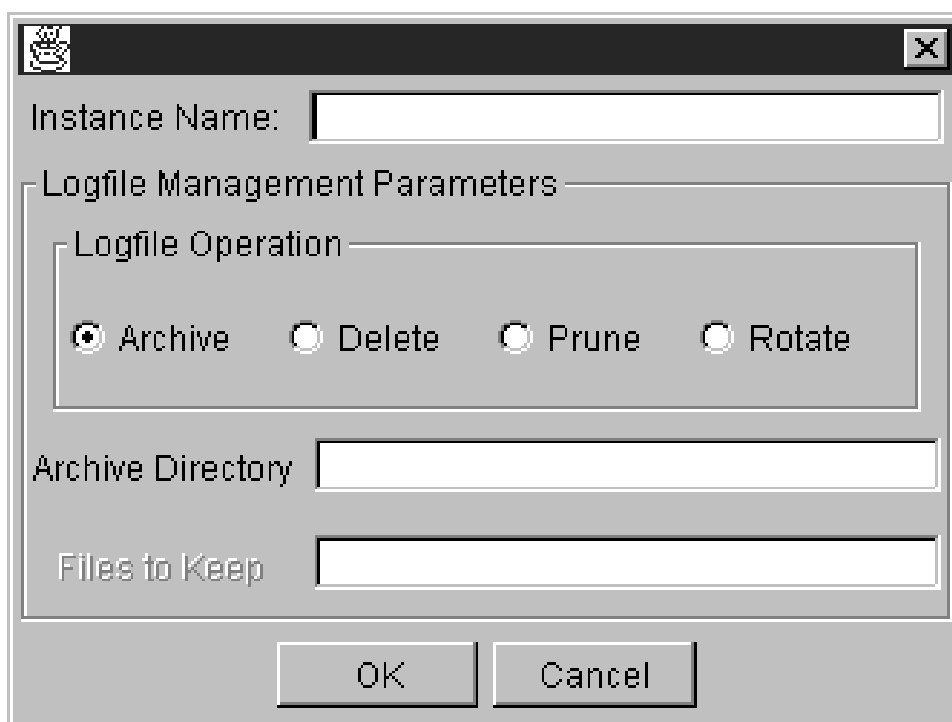


Figure 79. Example of an Archive Instance Dialog

In Figure 79 you can see the four options available to you. They are Archive, Delete, Prune and Rotate.

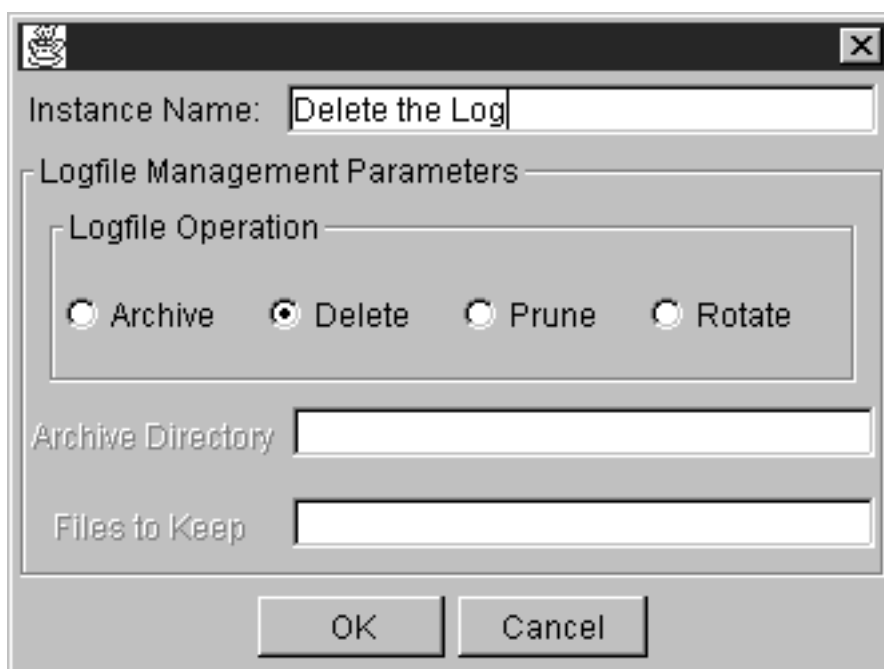


Figure 80. Example of a Delete Instance Dialog

Figure 80 shows an example of a *Delete* Instance. To see how this is implemented go to 3.1.2.2, “Customize Monitors” on page 75. To see what it looks like after it is implemented, see Figure 112 on page 84.

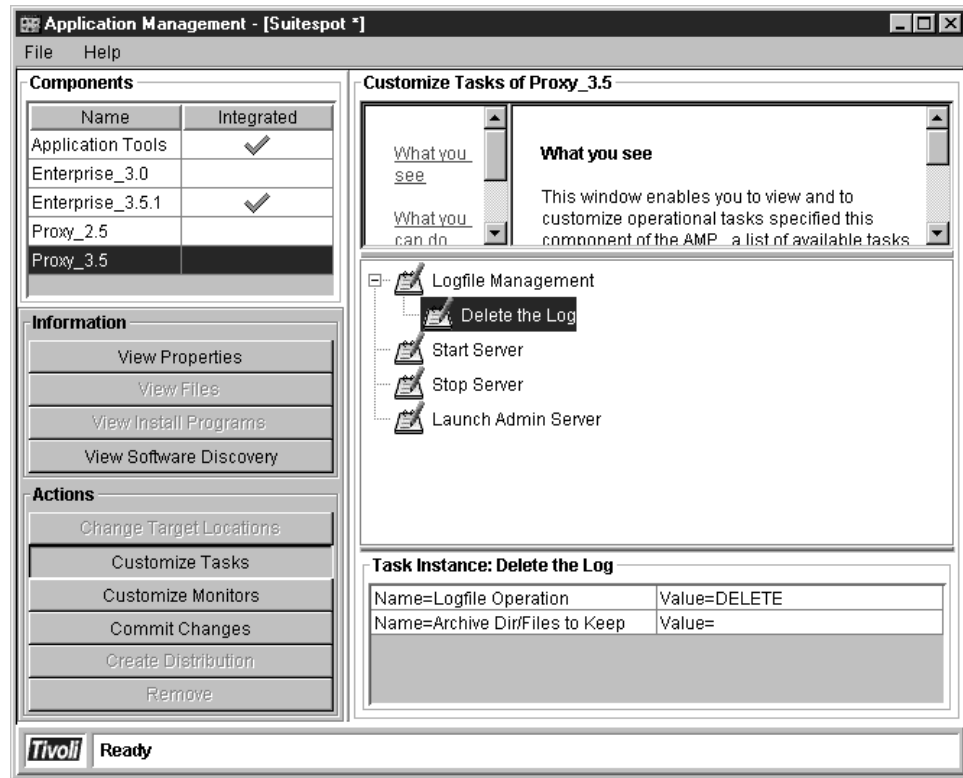


Figure 81. Example of Logfile Management

After you click on **OK** Figure 81 shows you the information for your newly created task.

**Note:** When you highlight the icon you will see some information about the task at the bottom-right corner. This field might be hidden. If so, you have to resize your information panes to see it.

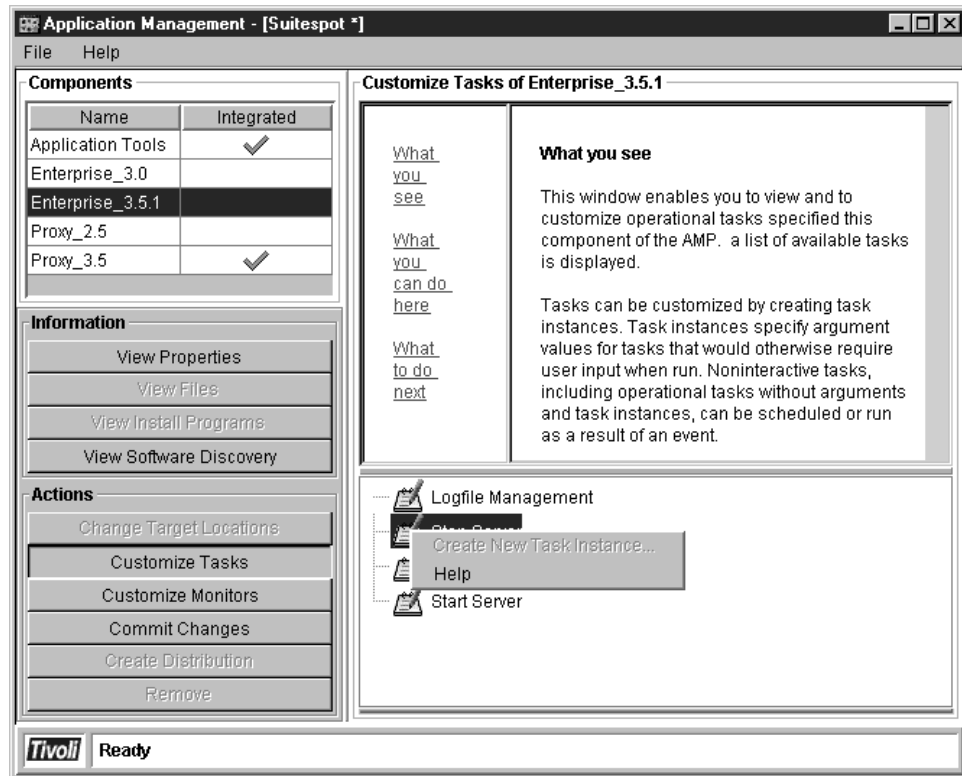


Figure 82. Options for Stop Server - The Same as for Launch Server

### 3.1.1.2 Customize Monitors

If you click on **Customize Monitors** Figure 83 on page 65 shows you what information is available.

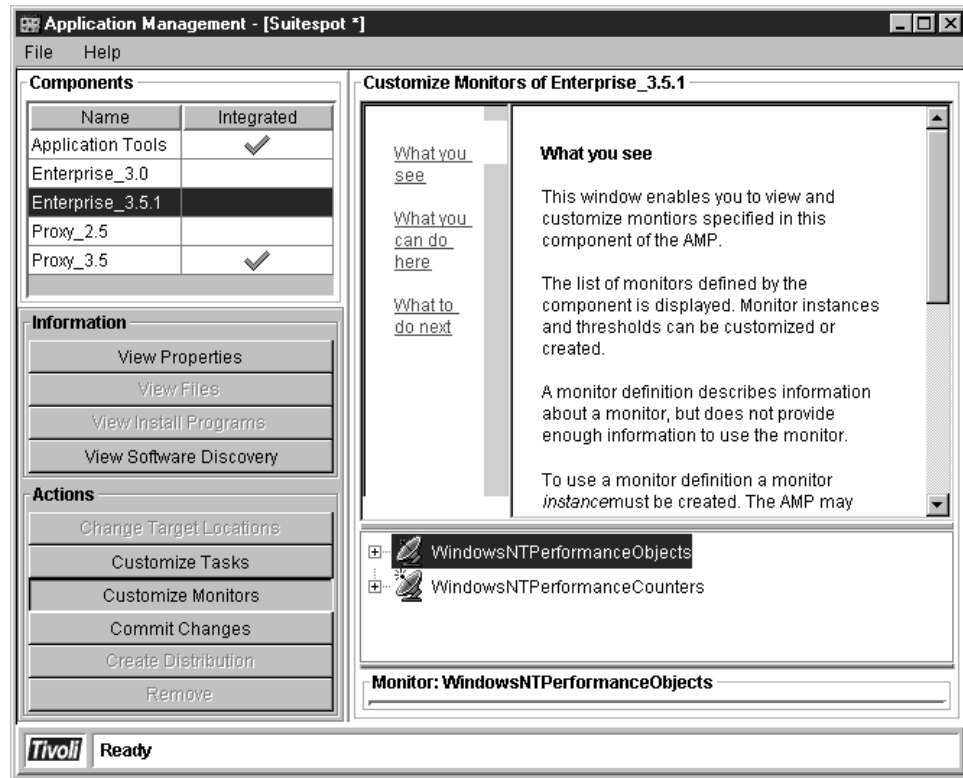


Figure 83. Customize Monitors

Note the third pane on the lower right side is only partially visible. You have to resize the pane in order to see all of the information. The following window shows an example of the pane resized.

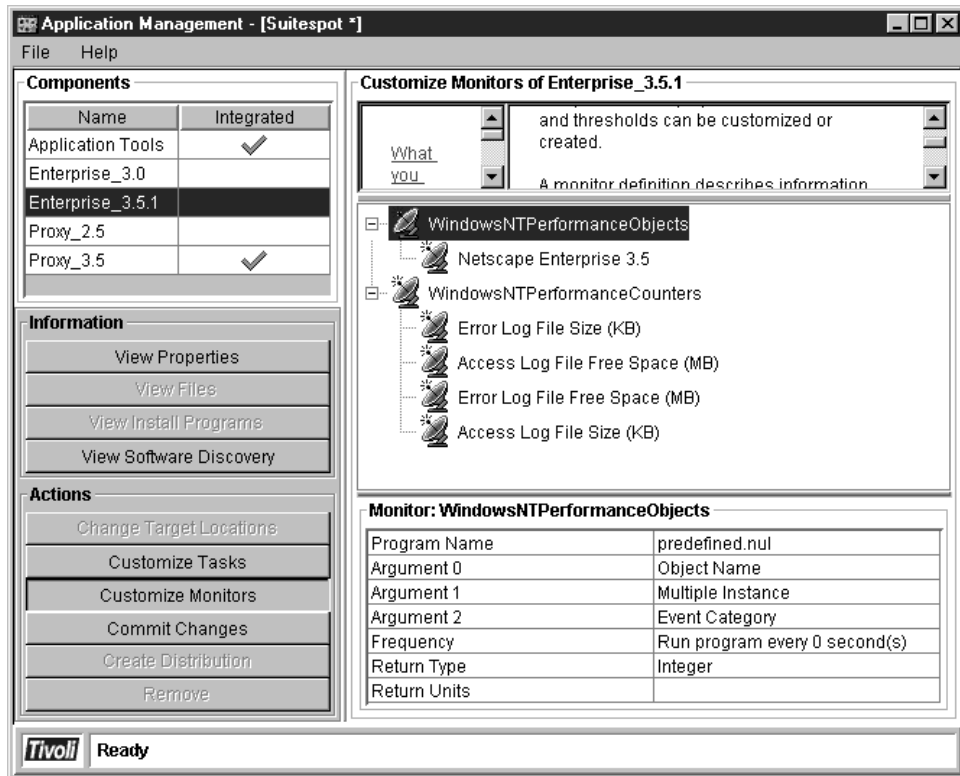


Figure 84. Customize Monitors

In Figure 84 the third pane is visible in the lower right-hand corner. Here you find information such as the objects arguments and the frequency of the monitor.

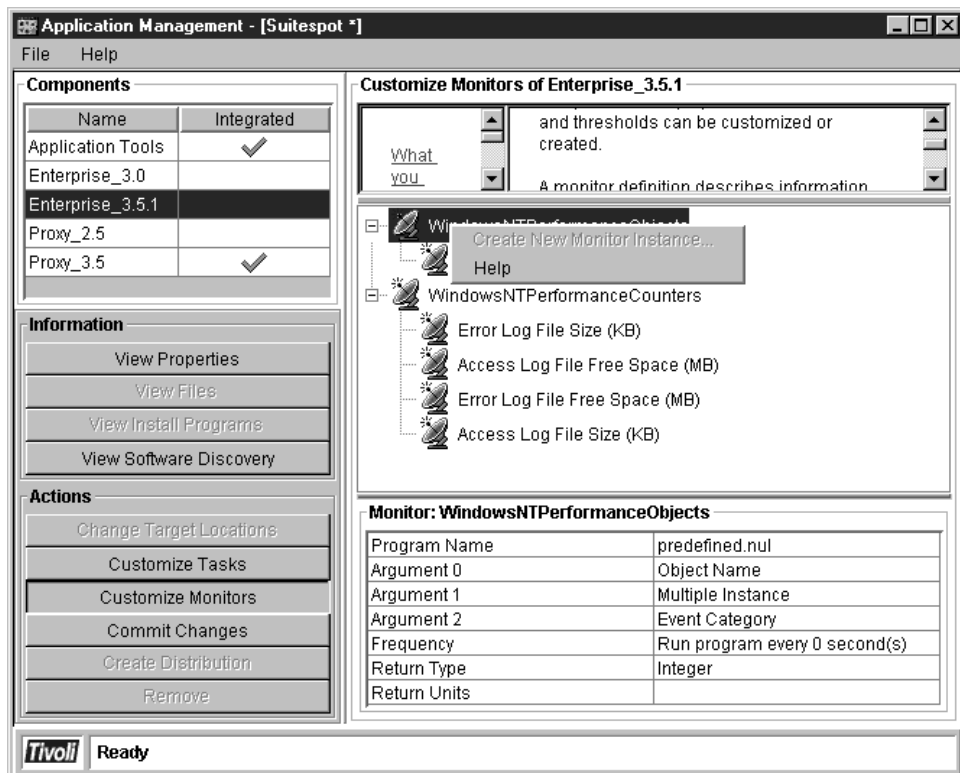


Figure 85. Customize Monitors



If you right click on the **WindowsNTPerformanceObjects** you will see the options shown in Figure 85. The only option is to view the Helpfile since these objects are defined by the NT Performance subsystem.

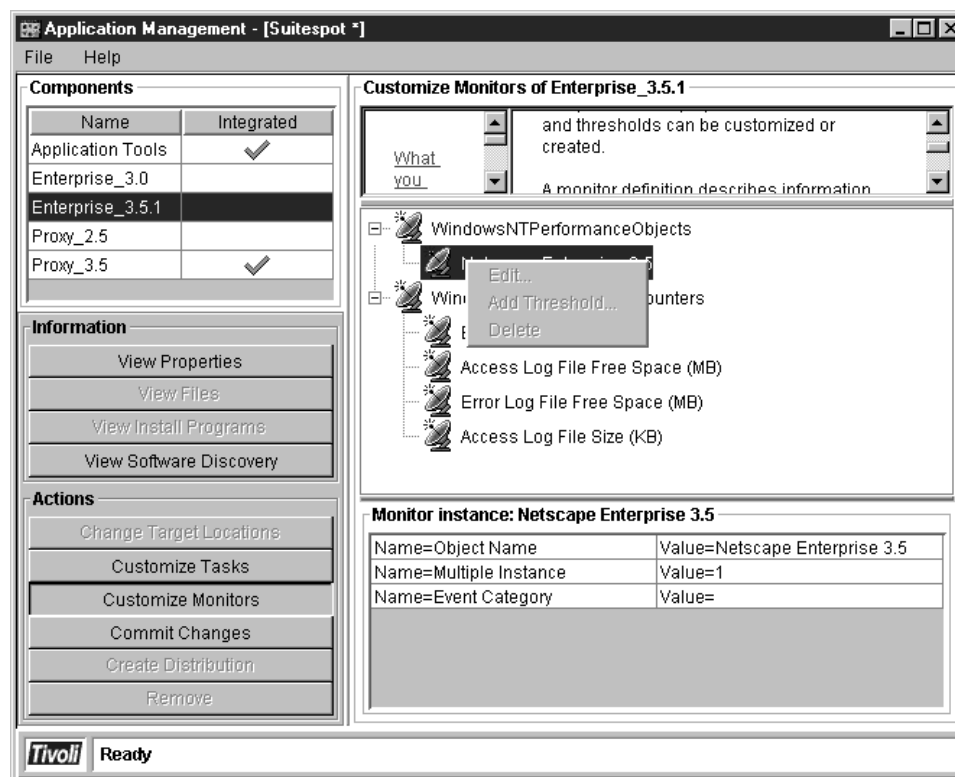


Figure 86. Options for WindowsNTPerformanceObjects

If you right click on the WindowsNTPerformanceObject called Netscape Enterprise 3.5, you can see that all the options are grayed out. An NTPerformance Object is made up of counters. These counters are individual monitor attributes. Since an object is made up of many counters, it is logical that you can't add a threshold to an object with more than one value. Therefore, there are no parameters to be set. The counters for this object can be found *under* WindowsNTPerformanceCounters. How to configure them is shown in 3.1.2.2, "Customize Monitors" on page 75.

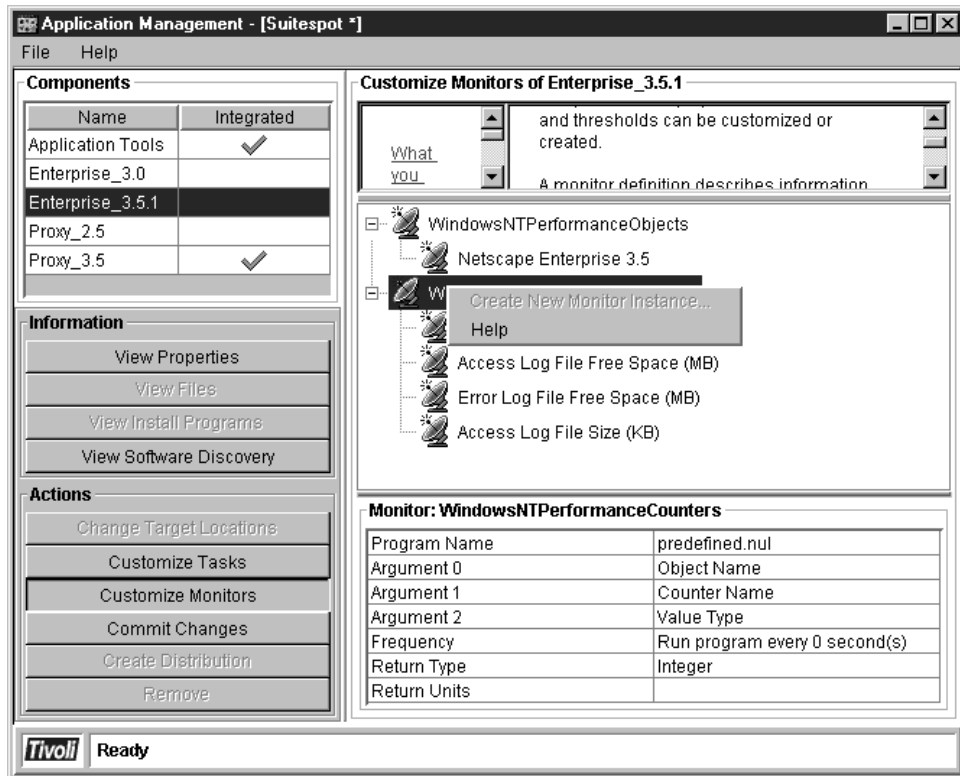


Figure 87. Options for WindowsNTPerformanceCounters

If you click on the monitor, the pane below it provides more information. If you right click on it, you will see what options are available for it.

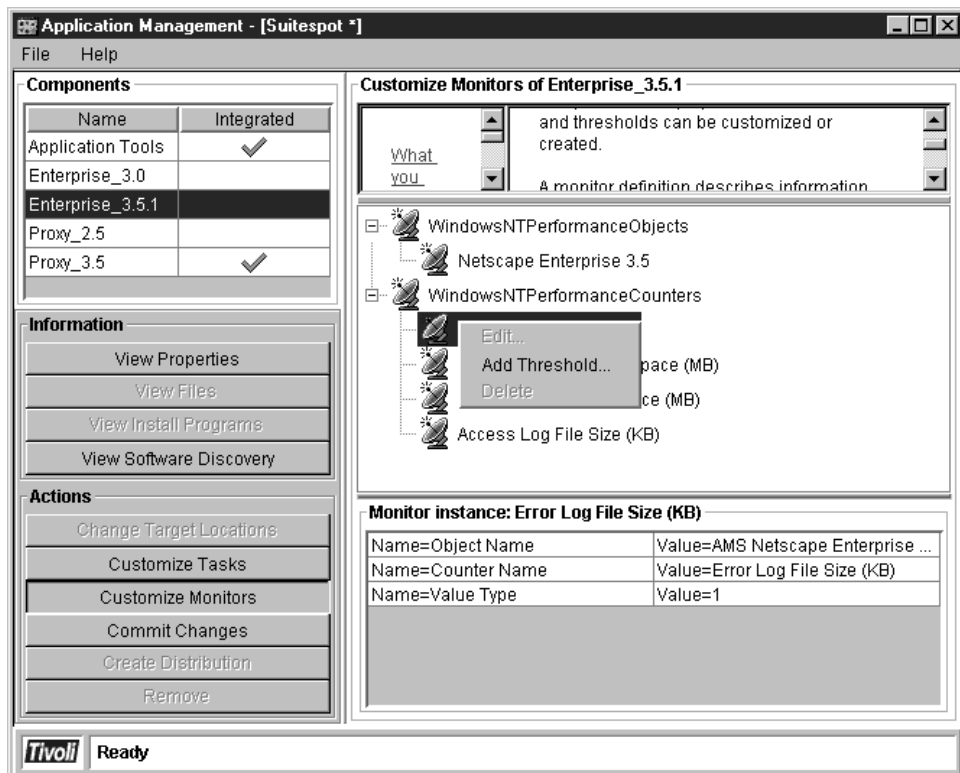


Figure 88. Options for WindowsNTPerformanceCounters

If you right click on the **WindowsNTPerformanceCounters** you will see these Monitor instance options. You can now customize this. For an example, see 3.1.2.2, “Customize Monitors” on page 75.

### 3.1.1.3 Commit Changes

When you click on **Commit Changes** all your modifications are saved.

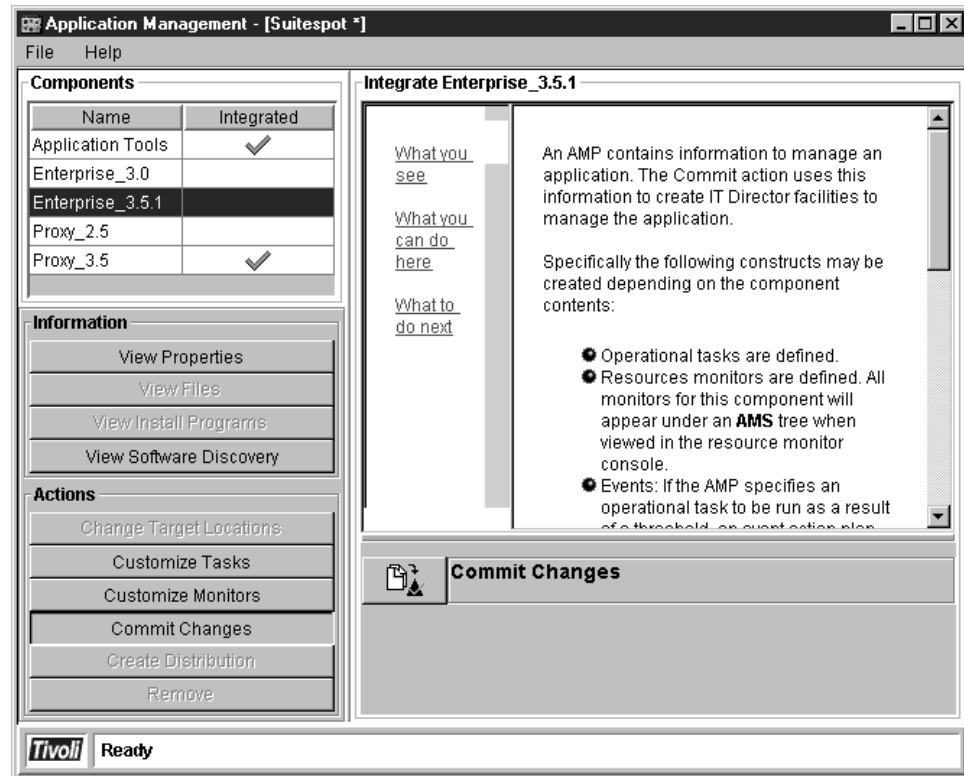


Figure 89. Commit Changes

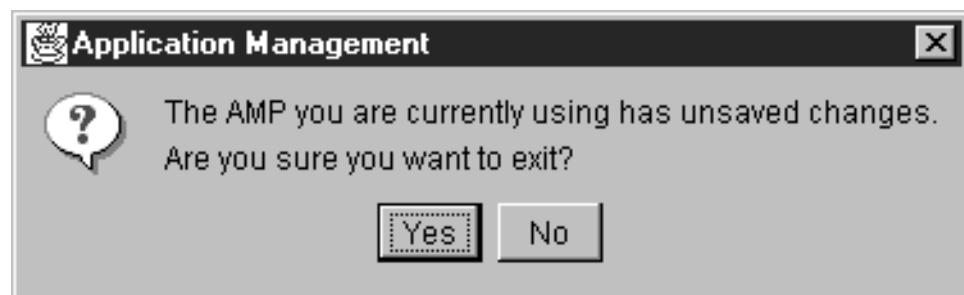


Figure 90. Try and Exit Without Saving Prompt

If you click on the menu option **File** and then choose **Exit** without having clicked on the **Commit Changes** button (and you had done some changes), you will be asked if you really want to exit without having saved your changes.

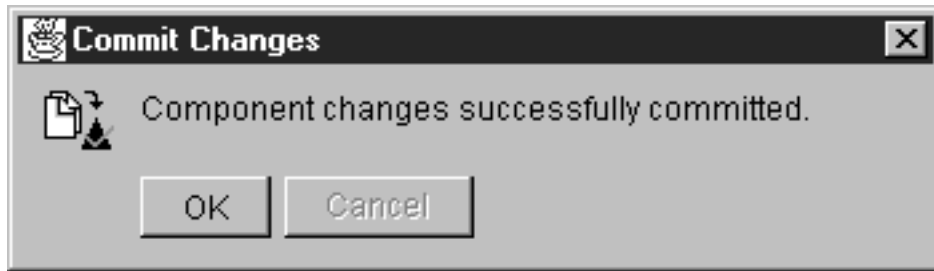


Figure 91. Commit Changes

Changes are made to the console interface and several files are modified. These are the files that are modified:

**Note:** The directory \tivoliwg\amsdata is hidden.

- \TivoliWg\amsdata\NetscapeSuitespot11.0\project.ams

A small piece of the file follows.

```
#
amp1.app1.compl.loc7.Index=1
amp1.app1.compl.loc7.SourceLocationPath=.\com\ativoli\twg\InetAMP
amp1.app1.compl.loc7.Type=Other
amp1.app1.compl.loc7.LocationPath=
#
amp1.app1.compl.loc8.Index=10
amp1.app1.compl.loc8.SourceLocationPath=.\w32\JRE\1.1\lib\security
amp1.app1.compl.loc8.Type=Other
amp1.app1.compl.loc8.LocationPath=
#
amp1.app1.compl.htarg4.TargetLocation=11
amp1.app1.compl.htarg4.SourceLocation=1
amp1.app1.compl.htarg4.TargetLocationFixed=True
amp1.app1.compl.htarg4.FileName=com\ativoli\twg\InetAMP\InetAMPNetscapeProxy35.class
#
```

Figure 92. Project.ams

- \TivoliWg\Classes\com\tivoli\twg\inventory\default.sid
- \TivoliWg\Data\Monalias.dat
- \TivoliWg\Data\TWGEvent.log

### 3.1.1.4 Create Distribution

After you commit your changes you are then ready to create your distribution files.

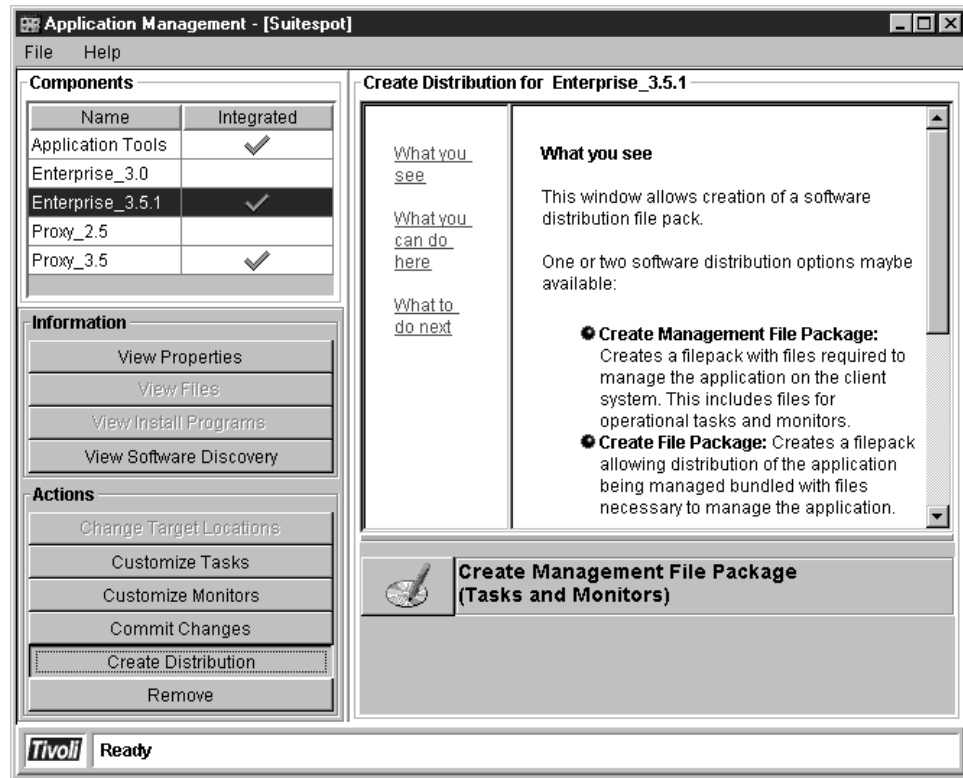


Figure 93. Create Management File Package

As shown in Figure 93 the *Create Distribution* button is now active. To be able to manage the client system you have to create a management file package and distribute it to all the clients you want to manage.

A management file package includes files required to manage the application on the client system. This includes files for operational tasks and monitors. When you have created the management file package the information about the management file package is stored in two files. These two files will be created for you in the `\TivoliWg\SwPkJnst\` directory (assuming you chose the default directory) on the Tivoli IT Director server. The files have the extensions FP and BLK, but the names of the files are different each time you create a management file package. For Netscape Suitespot Proxy V3.5 these files will be distributed to the `\TivoliWg\amsdata\NetscapeSuitespot11.0\NetscapeProxy_3.533.5\w32\` directory. This can be determined by looking at the *fp* file. You can't use the notepad utility to look at it. You can either type it out or use the default editor. For this component the files consists of four .bat files with the following names:

- InetAMPAdminBrowser.bat
- InetAMPNetscapeProxy35.bat
- InetAMPStartProxy35.bat
- InetAMPStopProxy35.bat

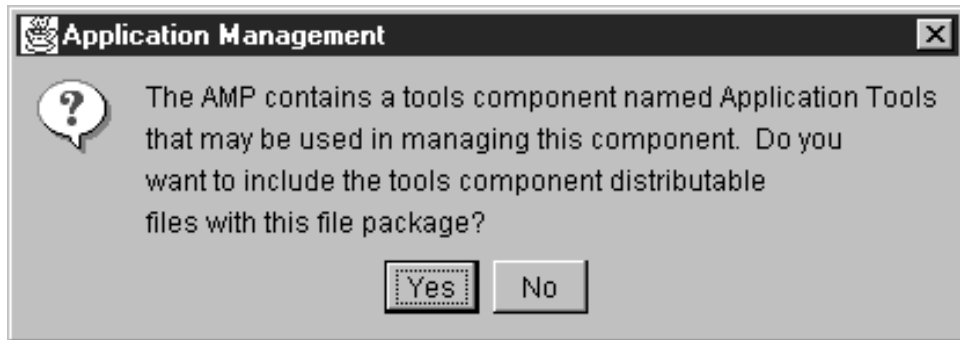


Figure 94. Application Management Dialog

Figure 94 shows a prompt asking you if you would like to bundle these files into this filepack. The Application Tools component should normally be bundled with the filepack so that you don't have to distribute multiple packages. The Application Tools component is a special component that AMP developers use to describe and provide any special support tools (programs) that are needed to execute the management tasks. For example, the tasks in the AMP may have been written in bash code: the bash environment would need to be provided for in order for the tasks to execute.

**Note:** The bash executable relates to the UNIX environment that can be set up and run on Windows NT. These executables are provided for you automatically. It is sometimes referred to as the bash shell.

Application Tools for Netscape Suitespot adds the function to Unregister Performance DLLs, which means that it removes the following DLLs from the registry:

- InetAMPamsnsent30.dll
- InetAMPamsnsent35.dll
- InetAMPamsnsps25.dll
- InetAMPnsps35.dll

They are all located at  
\\TivoliWg\\amsdata\\NetscapeSuitespot11.0\\NetscapeApplication Tools11.0\\w32 on your managed system.

The Suitespot AMP adds extra NT Performance monitors to the system being managed. The Remove Performance DLLs task allows the removal of these monitors if there are problems or if the system stops being a Netscape Suitespot system. This does not affect the rest of the NT Performance Subsystem, only the Netscape Suitespot extensions.

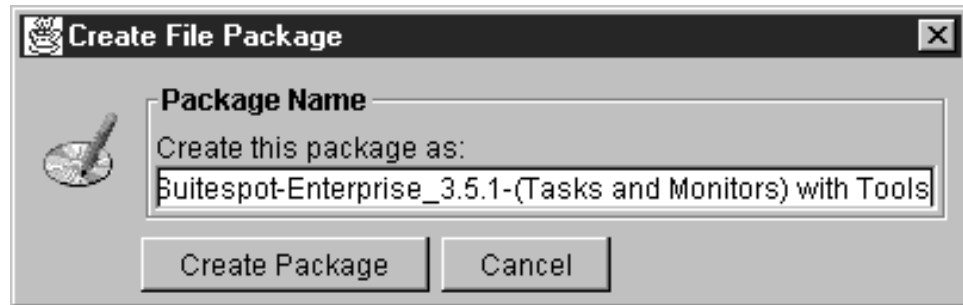


Figure 95. Click on Create File Package

In Figure 95 you can see the next window that pops up. Here you have the option to rename your software distribution package to your own naming standards. When you are done just click on **Create Package**.

### 3.1.2 Netscape Proxy V3.5 AMP

The Netscape Proxy Server is a Web server used for caching and filtering Web content. It also provides users with secure access to network resources. The Automatic Proxy Configuration (APC) feature of Netscape Communicator permits modifications to the proxy infrastructure without physically having to install the client software on every desktop.

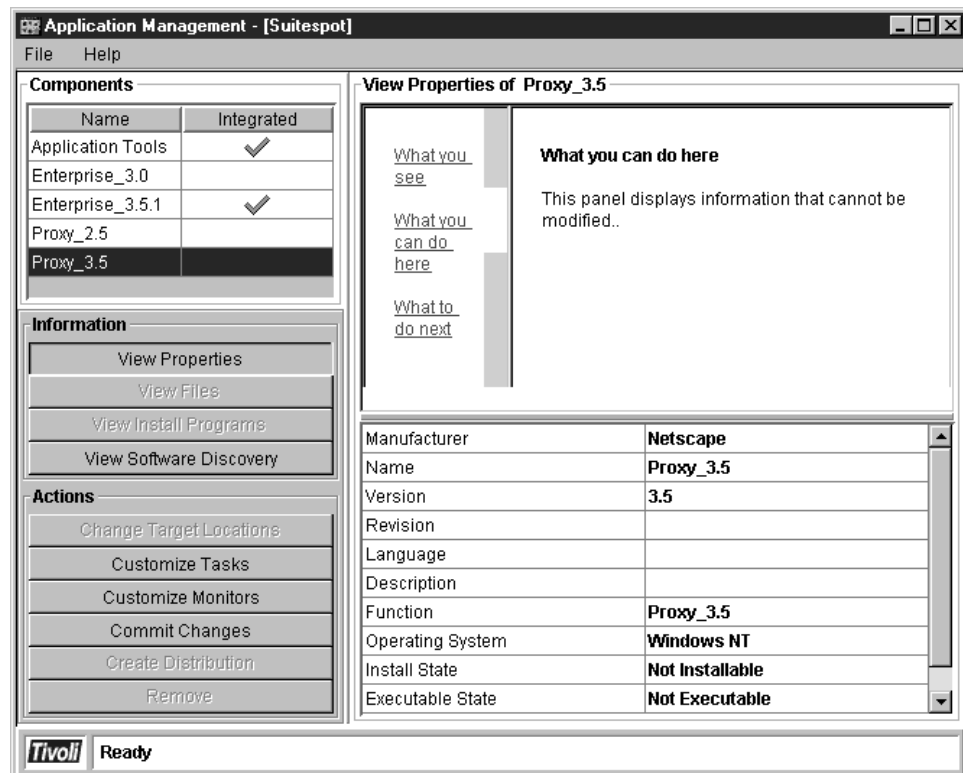


Figure 96. Properties for Proxy V3.5

In Figure 96 you can see information about the Netscape Proxy V3.5 AMP. The information is shown in the lower right-hand corner of the window for the component that you selected.

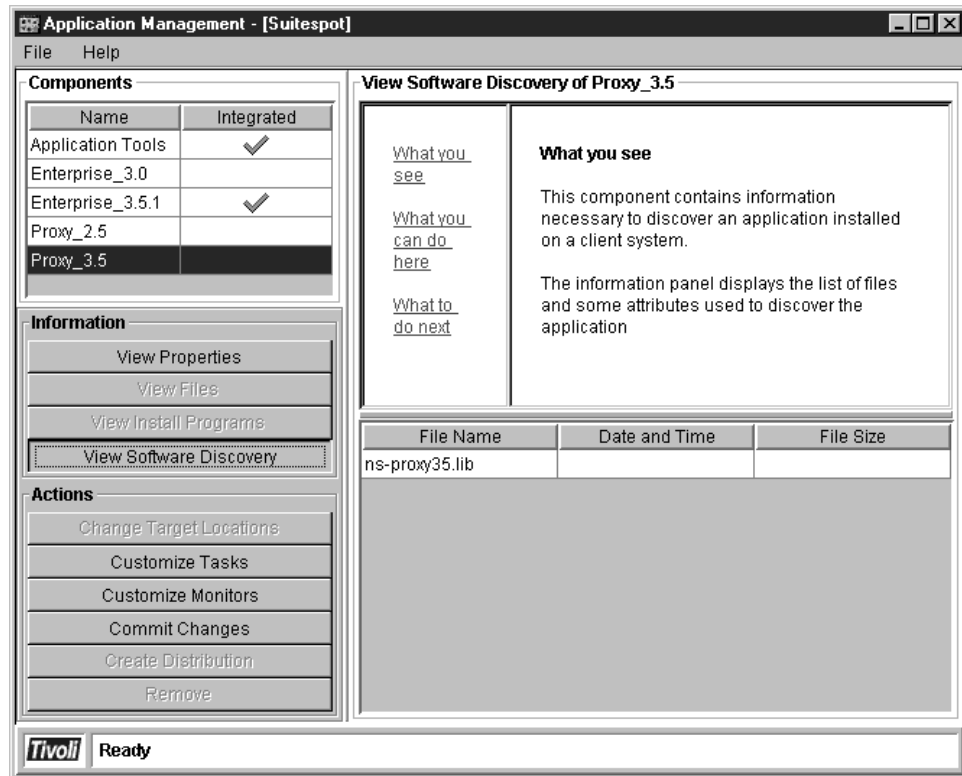


Figure 97. Click on Create Package

Figure 97 (under File Name) shows you which file Software Inventory will be looking for to determine if this particular program is installed or not. To see what the software inventory looks like see Figure 122 on page 89.

### 3.1.2.1 Customize Tasks

The following window shows you information related to customizing tasks for the Netscape Proxy Server V3.5.



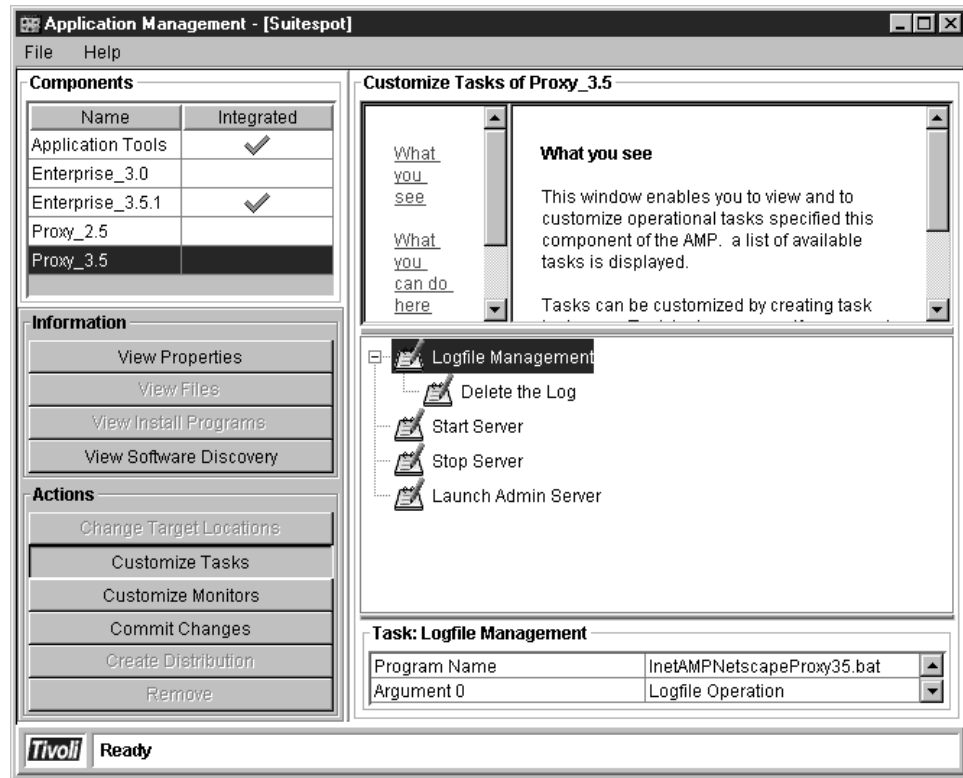


Figure 98. Customize Tasks

Note the information on the bottom right, which shows you the filename for the .bat file that gets distributed when performing a software distribution of this task. The .bat file is copied to  
 \TivoliWg\amsdata\NetscapeSuitespot11.0\NetscapeProxy\_3.533.5\w32.

### 3.1.2.2 Customize Monitors

This is where you customize monitors that you want on your remote systems. You can do this before you have distributed your management file package or you can go here and add monitors after you have already distributed your management file package. The following windows show you a working example.

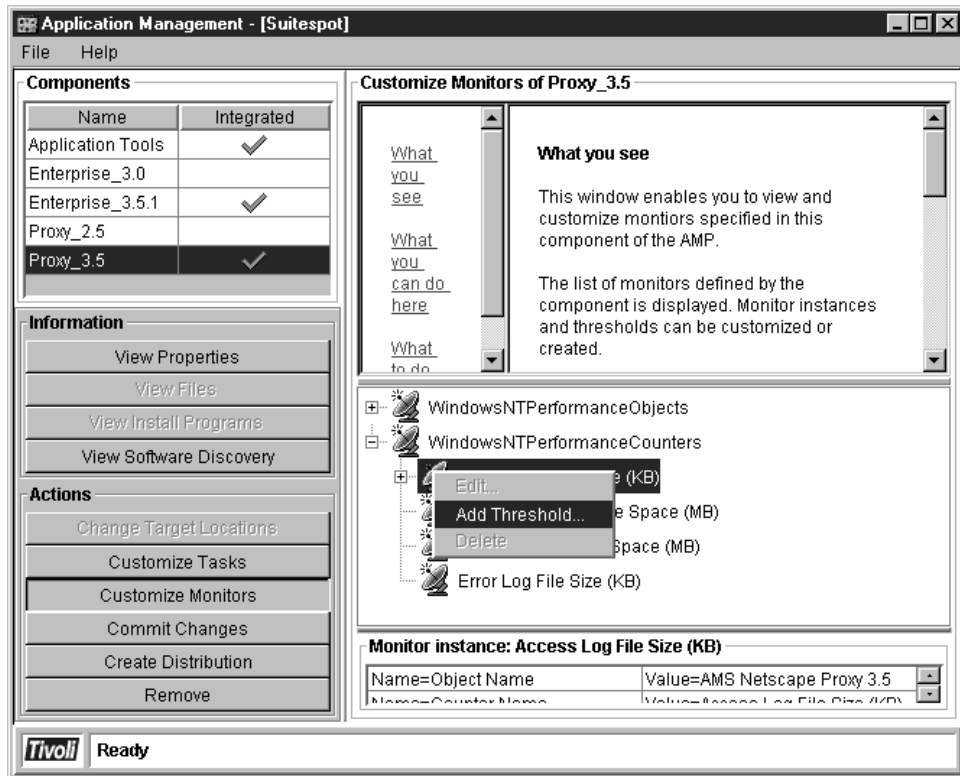


Figure 99. Customize Monitors

If you right click on the **WindowsNTPerformanceCounters** you can see the options shown in Figure 99. You can customize this by clicking on **Add Threshold**. There are four levels of severity: Low Warning, High Warning, Low Error, and High Error.

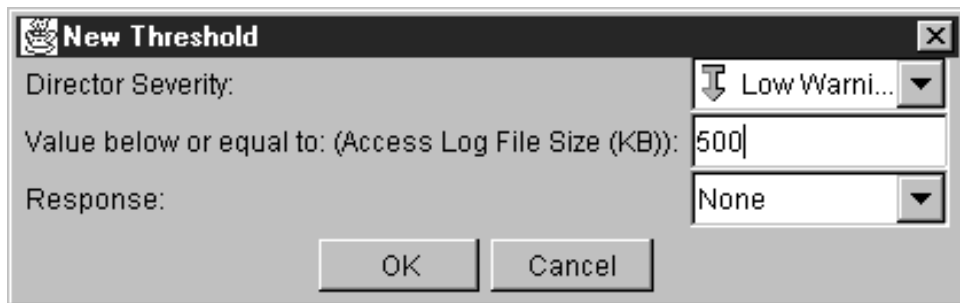


Figure 100. New Threshold Example

You need to set director severity, a file access size value and a response. We started with a low warning and no response. Remember that your monitors will be distributed to all your Netscape Proxy Servers to which you have distributed the management file package. Therefore, you should be careful about which thresholds you decide to implement. To see what the event log looks after this monitor is implemented, see Figure 114 on page 86 and Figure 115 on page 86.

**Note:** You should be careful when setting values for Low Warning and Low Error or you might receive warnings/errors all the time. Remember that the threshold value you set is *below or equal to*.

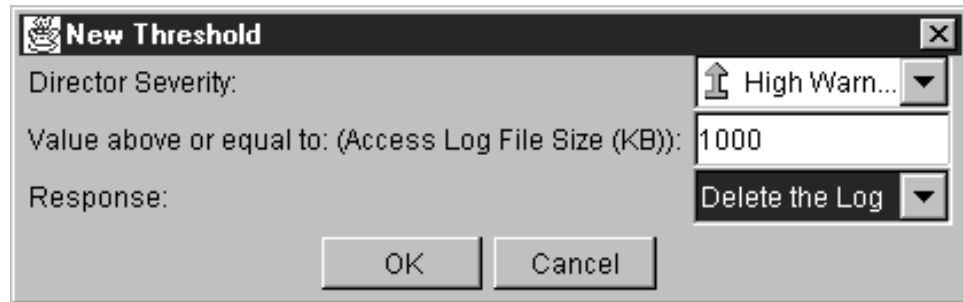


Figure 101. New High Warning Threshold

Next we configure a High Warning and use our own customized response *Delete the Log*. To see what the event log will look after this monitor is implemented see Figure 118 on page 88 through Figure 120 on page 88.

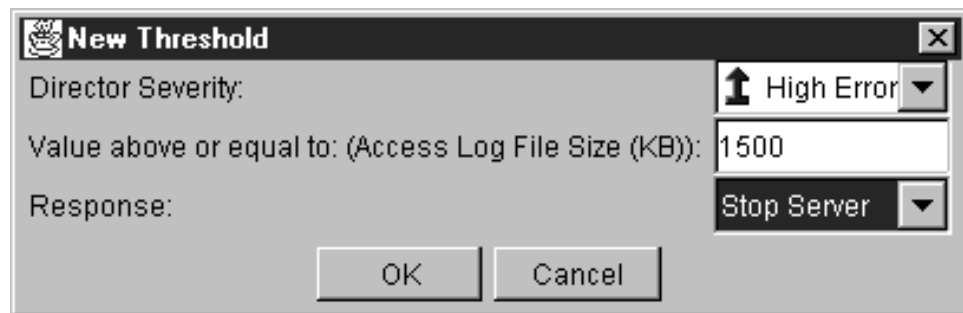


Figure 102. New High Error Threshold

In Figure 102 you can see an example of a High Error. It would be rare that you would have such a case, but it is possible it could happen and that you would want to stop the server. If this occurs, you could set up a task that will notify the Administrator that the server has been stopped.

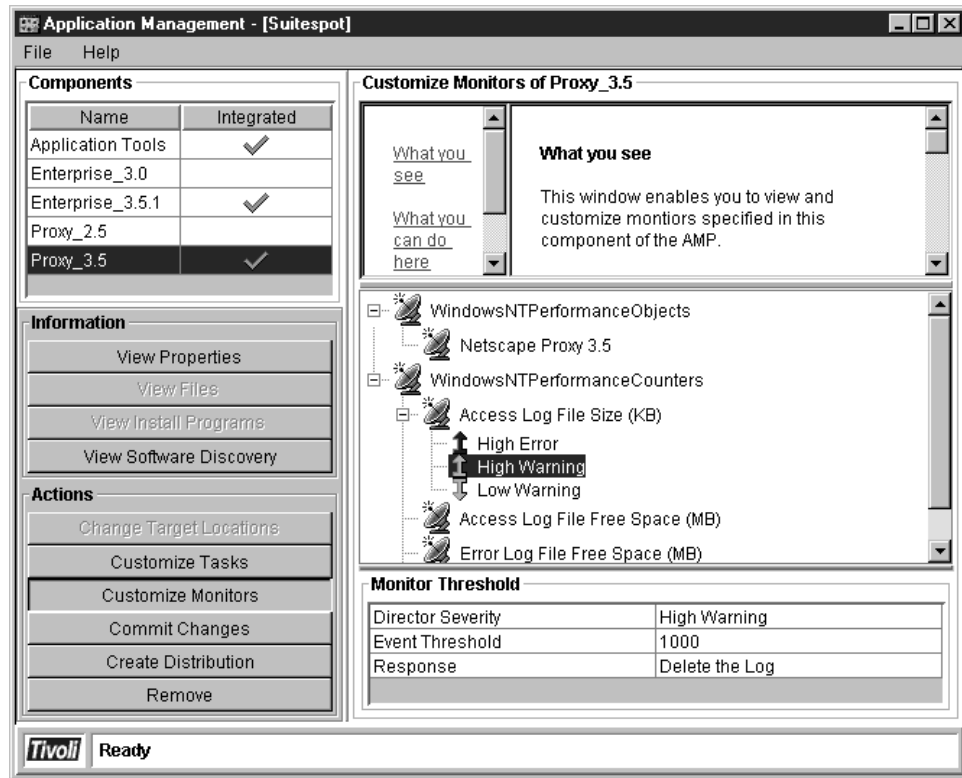


Figure 103. Information for the New Thresholds

Figure 103 shows you what the new implemented thresholds look like. You do not have to open the event to see how you have configured the monitor. You can just single click on the monitor and you will see all the information about your monitor in the bottom right-hand pane (under Monitor Threshold).

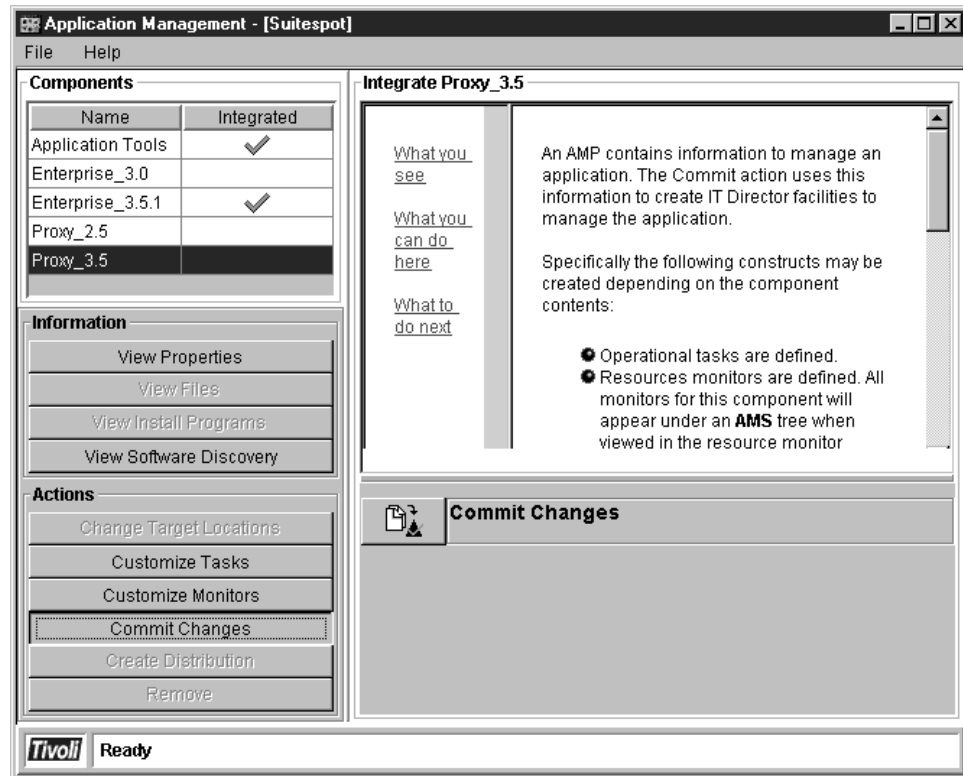


Figure 104. Commit Changes

To save all the customization you did, just click on the **Commit Changes** button shown in Figure 104. If your monitors are added *after* you create and distribute your management file package, Tivoli IT Director automatically distributes all of your new monitors to the remote systems that have this component installed. Tivoli IT Director will automatically add the monitors to your Event Action Plan for all the systems that have this component installed.

### 3.1.2.3 Create Distribution

When creating a management file package, Tivoli IT Director will also read the value of some keys in the Registry. One that might be worth mentioning is `HKEY_LOCAL_MACHINE\Software\Tivoli\Director\CurrentVersion\SwDistPk`.



Figure 105. Registry Key Example

The default value of this key is `\TivoliWg\SwPklnt`. If you would like to change the default directory to where your files are distributed, don't do it by changing this key. You will receive an error message when creating the management file package. If you receive an error message while creating your management file package it could be worthwhile checking the value of the above key and also check `HKEY_LOCAL_MACHINE\Software\Tivoli\Director\CurrentVersion\SwPklnt`. It should also have the value `\TivoliWg\SwPklnt`. We show how to change this correctly in the following window.

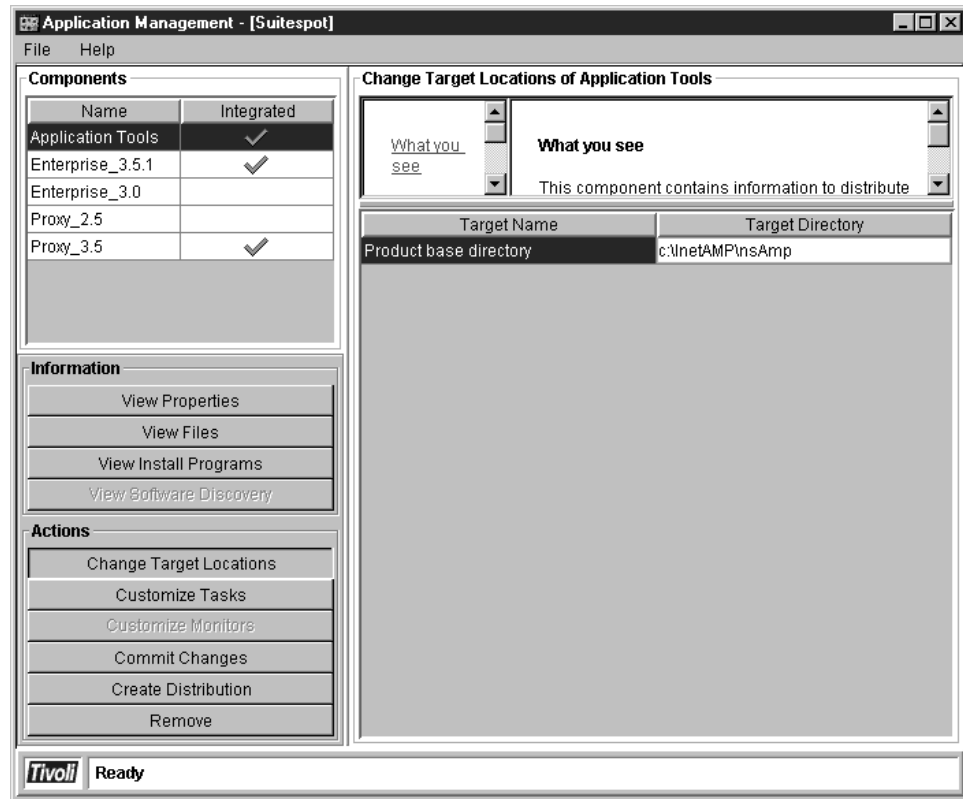


Figure 106. Changing the Target Directory

The correct way to change where you want the files to be distributed to is from the Application Management window. You click on the action **Change Target Locations** and you get a column named Target Directory in your right pane which you can click on and type in the directory you want it distributed to.

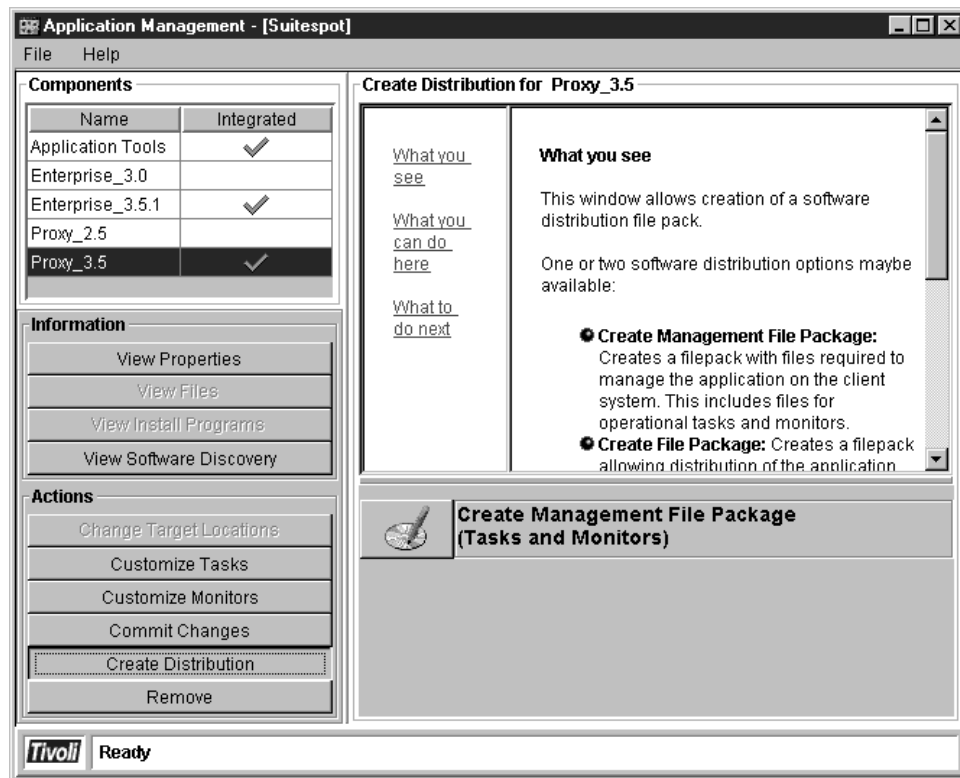


Figure 107. Create Management File Package

Click on the **Create Management File Package** icon.

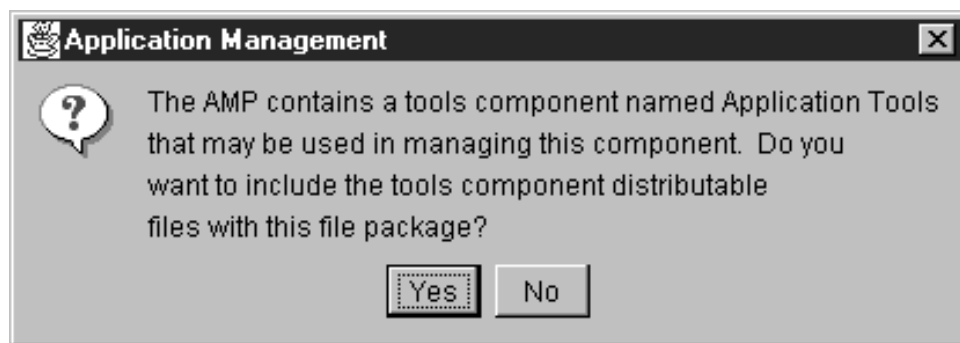


Figure 108. Application Management Dialog

You will be asked if you want to install a tool called Application Tools. This adds the function to Unregister Performance DLLs. For more information see Figure 94 on page 72.



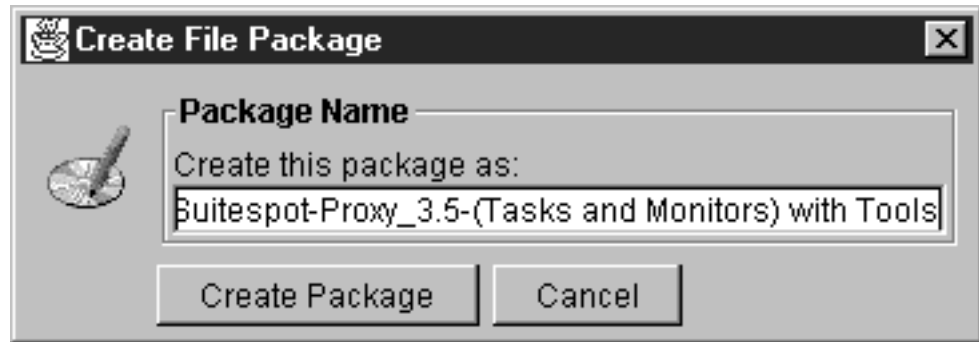


Figure 109. Create File Package

You have the option to rename the file package to a name that better suits the environment. Otherwise, just click on **Create Package**.

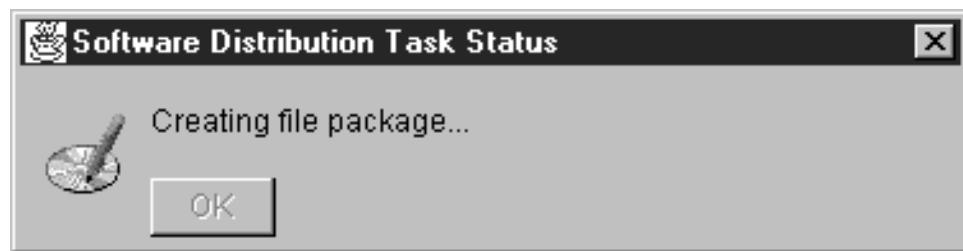


Figure 110. Software Distribution Task Status

Figure 110 shows the window that will pop-up next. Do not be alarmed if this task takes some time to complete. The more customization you have done the longer the task will take to complete.

After it is complete you will get another pop up window indicating that the file package was created.

#### 3.1.2.4 Working Examples

In this section we show a few examples of implementing tasks and monitors with Tivoli IT Director and Netscape Suitespot.

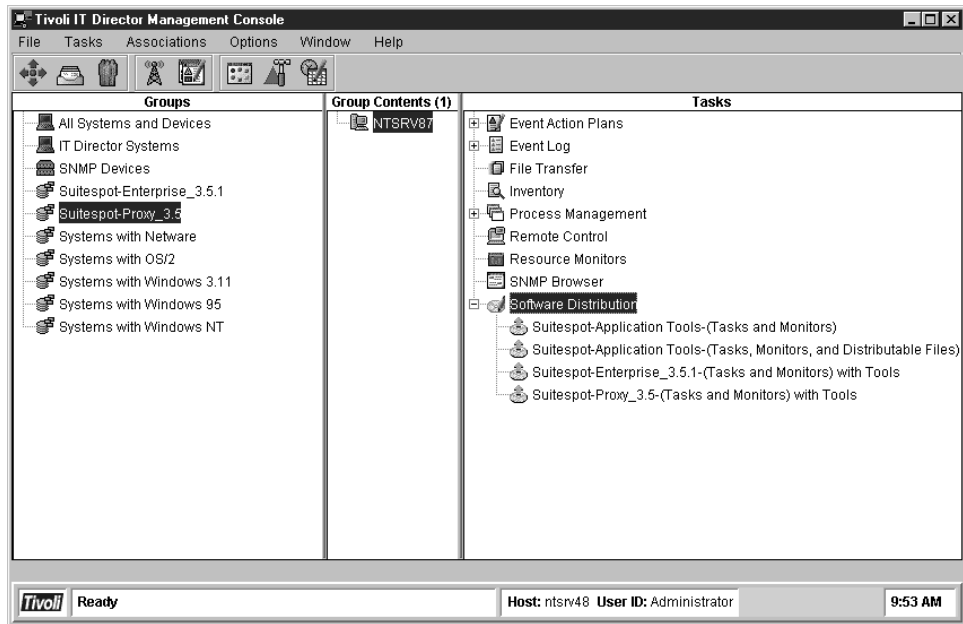


Figure 111. Management Console

In Figure 111 you can see the Tivoli IT Director console. In the Tasks pane you can see an entry for Software Distribution. As a result of the AMP customization that was already performed you can see that there are some new packages created that you can distribute by just dragging and dropping them onto the host which you want to distribute the software to.

The software packages that are installed are *Read only* and can't be modified. They can be exported for use on other Director servers by right-clicking on a software package and choosing **Export**.

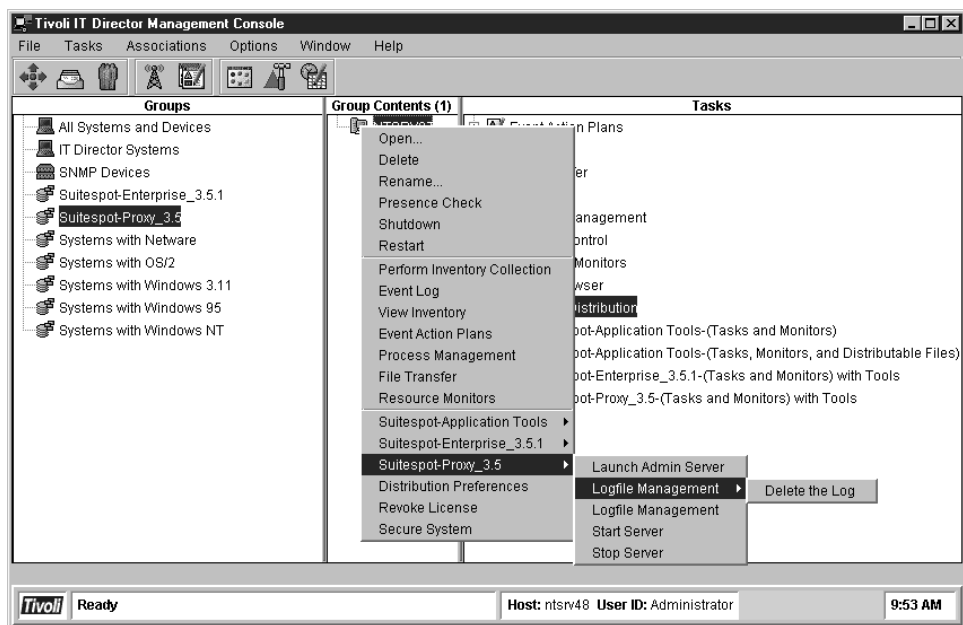


Figure 112. Suitespot Proxy - Delete the Log

In Figure 112 you can see the tasks you can execute on your managed host including the newly created Delete the Log task.

Below the Delete the Log task you also find the default tasks Start Server and Stop Server. When executing the command Stop Server you will not see any error messages if the server is already stopped. Use the Tivoli IT Director Process Management Utility to see if the Server Service is running or not. The same thing applies to the command Start Server.

### 3.1.2.5 Removing a Component

When removing a tool it removes all software distribution packages from the console interface. The group Suitespot-xxxxxx is also removed. You are also reminded that Tivoli IT Director will remove everything from all systems where that tool has been installed and are manageable by Tivoli IT Director.

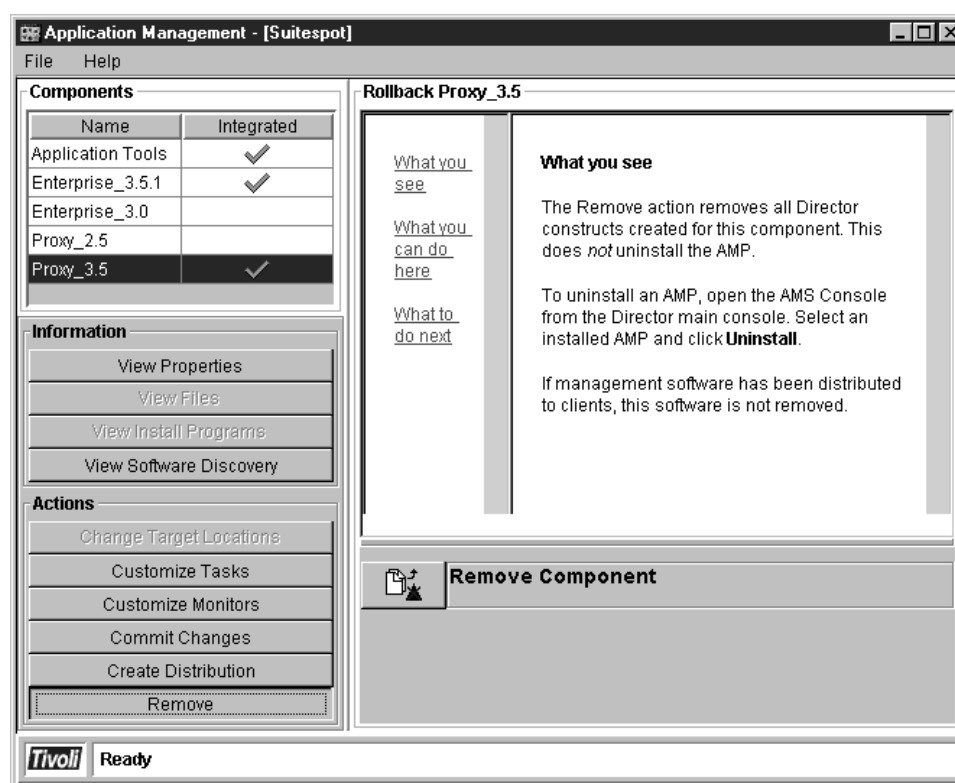


Figure 113. Remove Component

### 3.1.2.6 Event Logs

Following are some examples that show the content of the event log after a monitoring threshold was reached.

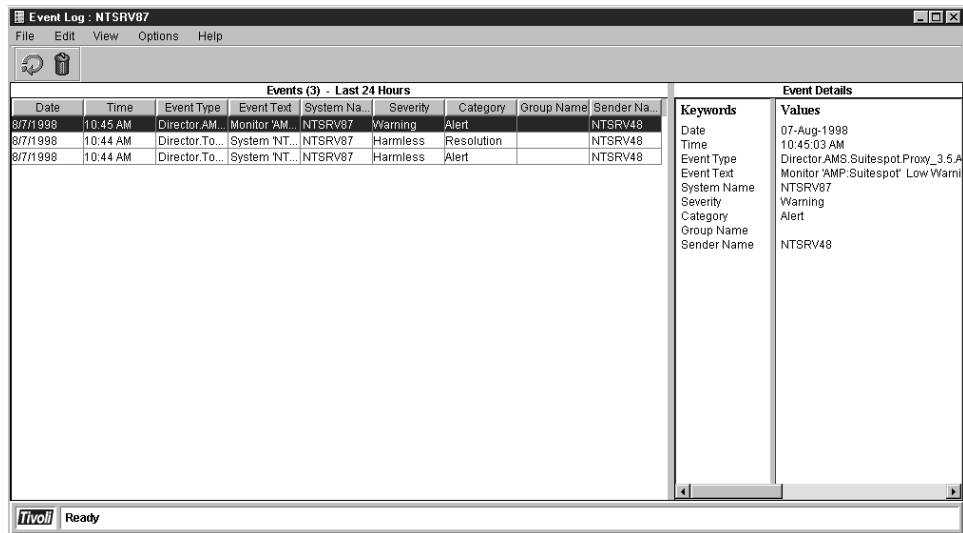


Figure 114. Example of Event Log

In Figure 114 we opened the Event Log for our managed host. You can see that we received a Low Warning event from a monitor that we had created. If you resize the pane on the right you will find more information about this event as shown in the following window.

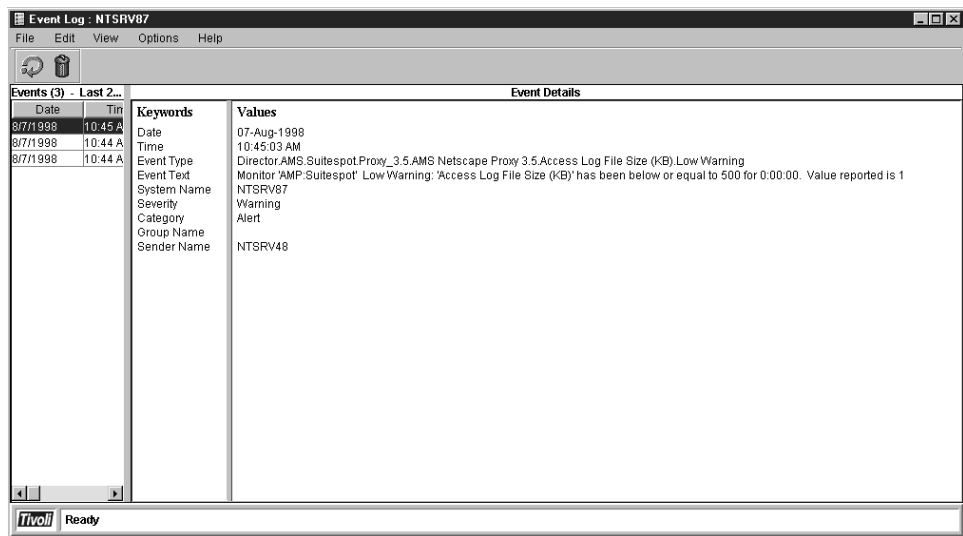


Figure 115. Low Warning Threshold Reached

Figure 115 gives you some more information about this event. For the purpose of this example, the event log will fill up with events, since it gives us an event as long as the access log is smaller than 500 KB and the current size is 1 KB. This was just to demonstrate the flow and to create some events. It is not representative of the numbers you would use to monitor.

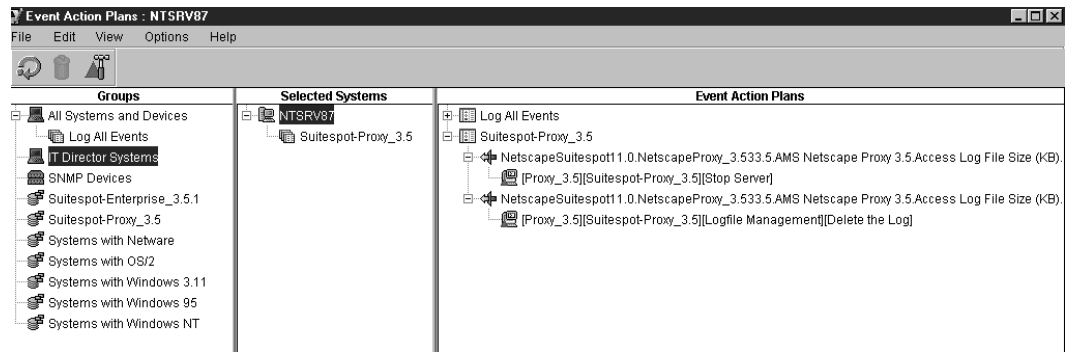


Figure 116. Example of Event Action Plan

In Figure 116 we opened the Event Action Plan window so that we can see what is added there after we installed the Netscape Suitespot. We can see that Tivoli IT Director has added the monitors and the tasks that we configured using the Tivoli IT Director Application Management Tool.

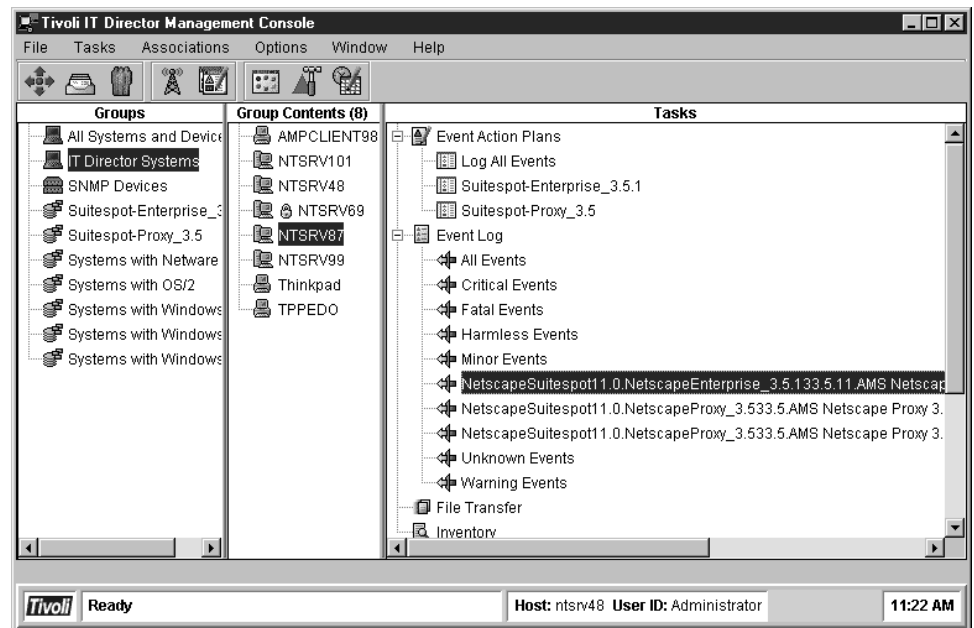


Figure 117. Example of Event Log Instances

You can see the new Event Logs that were created when we installed Netscape Suitespot (see Figure 117). To view one of them all you have to do is to right-click on it and select **open**. Just above them you can also see the Event Action Plans which we were taking a closer look at in Figure 116. They are easily distributed to new hosts by just dragging and dropping them.

Events (5) - Last 24 Hours									Event Details	
Date	Time	Event Type	Event Text	System Na...	Severity	Category	Group Name	Sender Na...	Keywords	Values
8/7/1998	11:21 AM	Director.AM...	Monitor 'AM...	NTSRV87	Harmless	Resolution		NTSRV48	Date	07-Aug-1998
8/7/1998	11:21 AM	Director.AM...	Monitor 'AM...	NTSRV87	Warning	Alert		NTSRV48	Time	11:21:31 AM
8/7/1998	10:45 AM	Director.AM...	Monitor 'AM...	NTSRV87	Warning	Alert		NTSRV48	Event Type	Director.AMS.Suitespot.Enterprise_...
8/7/1998	10:44 AM	Director.To...	System 'NT...	NTSRV87	Harmless	Resolution		NTSRV48	Event Text	Monitor 'AMP:Suitespot' High Warni...
8/7/1998	10:44 AM	Director.To...	System 'NT...	NTSRV87	Harmless	Alert		NTSRV48	System Name	NTSRV87
									Severity	Warning
									Category	Alert
									Group Name	
									Sender Name	NTSRV48

Figure 118. Example of Event Log Instances

You can see the warning that you will receive when the monitor configured in Figure 101 on page 77 is triggered. If you resize the pane on the right you will find more information about this event as shown in the following window.

Events (5) - Last 24 Hours			Event Details
Date	Time	Event Type	Values
3/7/1998	11:21 AM	Director.AM...	07-Aug-1998
8/7/1998	11:21 AM	Director.AM...	11:21:31 AM
3/7/1998	10:45 AM	Director.AM...	Director.AMS.Suitespot.Enterprise_3.5.1.AMS.Netscape.Enterprise.3.5.1.Access.Log.File.Size.(KB).High.Warning
3/7/1998	10:44 AM	Director.To...	Monitor 'AMP:Suitespot' High Warning: 'Access Log File Size (KB)' has been above or equal to 50 for 0:00:00. Value reported is 1,338
3/7/1998	10:44 AM	Director.To...	NTSRV87
			Warning
			Alert
			NTSRV48

Figure 119. Example of Event Log

You can see that the value of the Access Log was 1338 KB which exceeds the threshold we had set (50 KB). The warning should then execute our task *Delete the Log* which is shown in Figure 120.

Events (5) - Last 24 Hours			Event Details	
Date	Time	Event Type	Keywords	Values
3/7/1998	11:21 AM	Director.AM...	Date	07-Aug-1998
8/7/1998	11:21 AM	Director.AM...	Time	11:21:50 AM
8/7/1998	10:45 AM	Director.AM...	Event Type	Director.AMS.Suitespot.Enterprise_3.5.1.AMS.Netscape.Enterprise.3.5.1.Access.Log.File.Size.(KB).Normal
8/7/1998	10:44 AM	Director.To...	Event Text	Monitor 'AMP:Suitespot' Informational: 'Access Log File Size (KB)' has returned to normal.
8/7/1998	10:44 AM	Director.To...	System Name	NTSRV87
			Severity	Harmless
			Category	Resolution
			Group Name	
			Sender Name	NTSRV48

Figure 120. Example of Event Log

Figure 120 shows the information about the next event that we clicked on in the left-hand pane. We can see that the task we had configured to be executed has resolved the warning. The access log has been deleted and it is once again below the threshold that we had set.



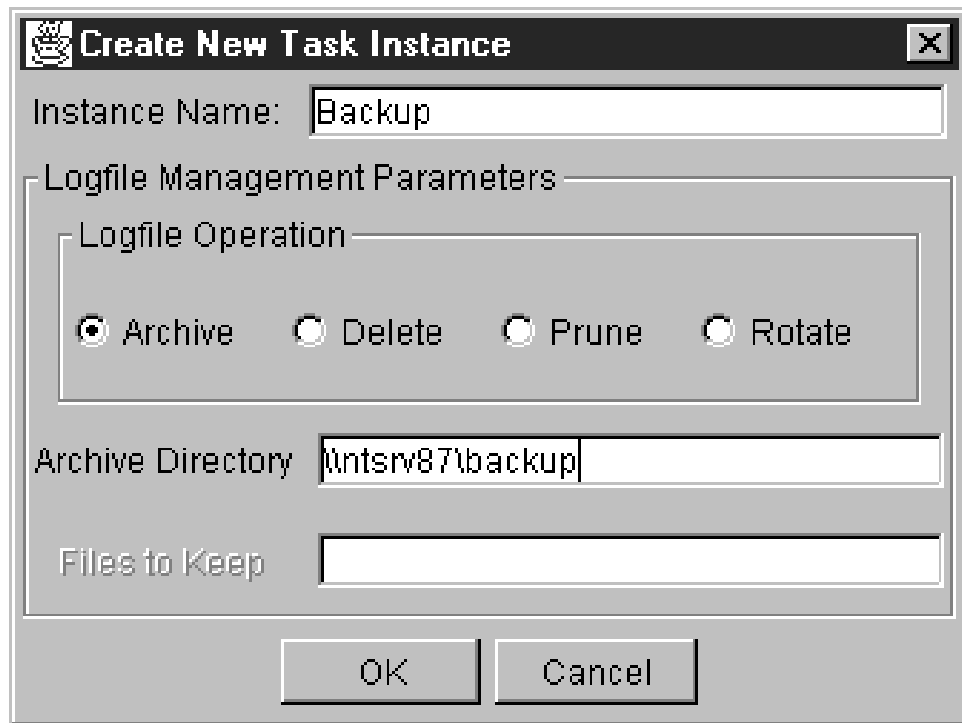


Figure 123. Example of Backup Task

We created a new *Task Instance* for *Logfile Management* called Backup. We wanted to save our logfiles to another server on the network by addressing it with an UNC name. As shown in Figure 124 this does not work.



Figure 124. Example of Error Message

Figure 124 shows the error message we receive if we try to enter an UNC name for the location of the backup files. Figure 125 on page 91 shows how to configure it correctly.



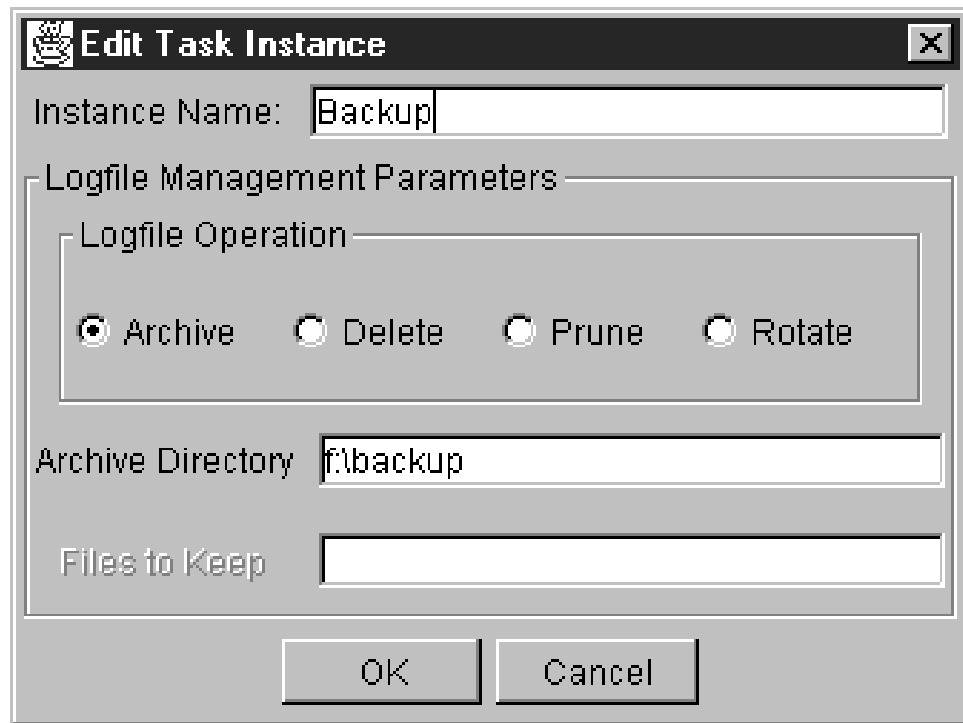


Figure 125. Correct Example of Backup Task

In Figure 125 we use f:\backup for the location of our logfiles. We recommend you make this a permanent mapped network drive and have the target directory on a file server which is backed up regularly. When testing this we received an error message in our system log saying that it could not create the f:\backup directory. We assumed it had to do with the rights of the Tivoli IT Director agent and changed it as shown in Figure 126.

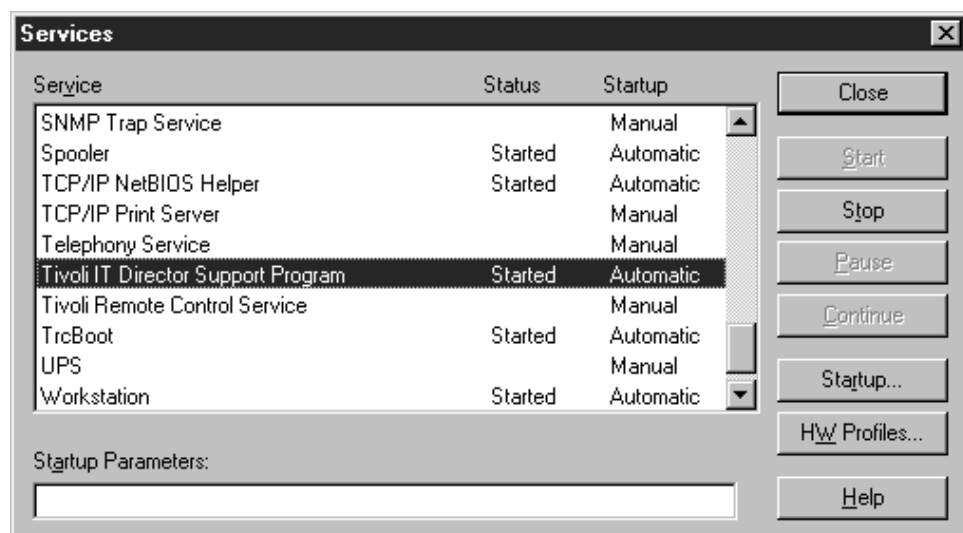


Figure 126. Services

We opened the control panel on our host machine and clicked on **Services**. Scrolling down the list we found the service called Tivoli IT Director Support Program and clicked on **Startup**.

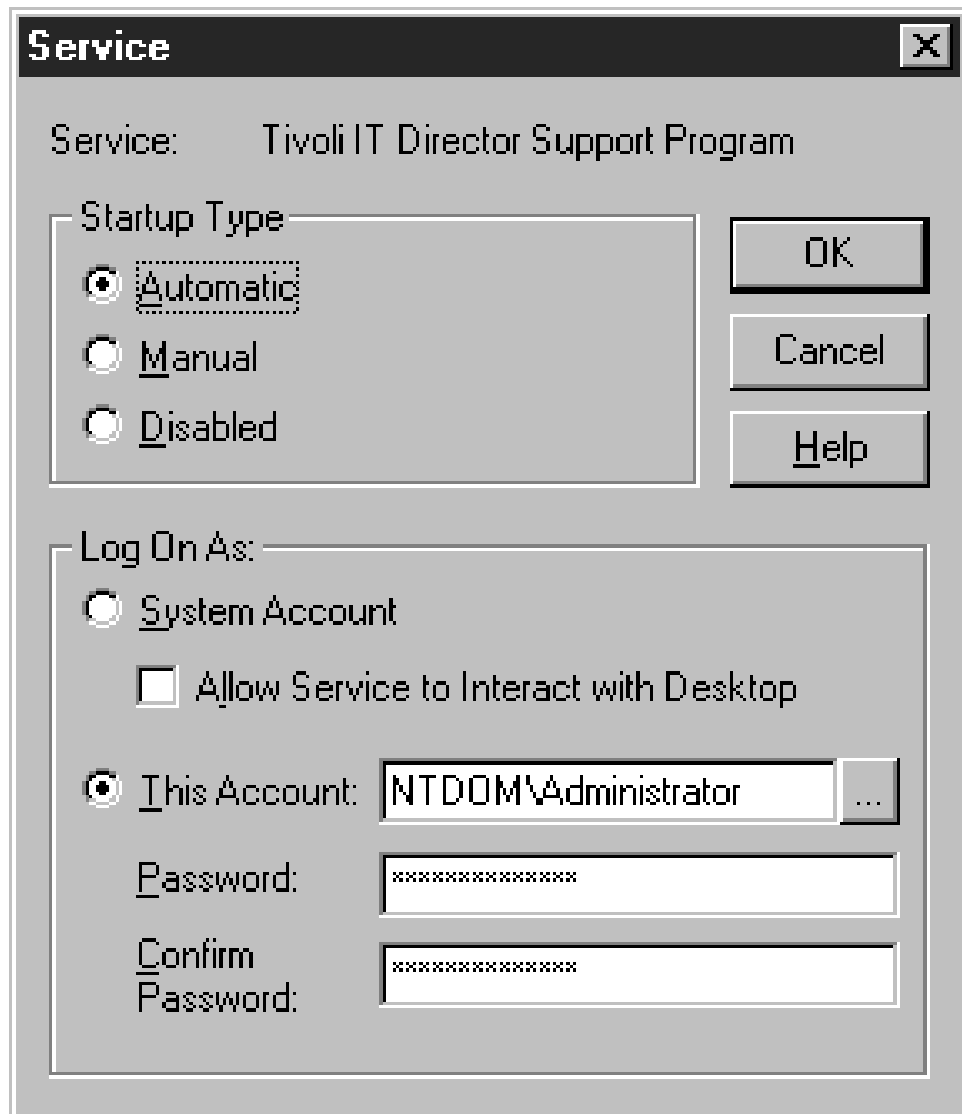


Figure 127. Changing Service Account

Figure 127 shows how to configure the service to run with domain admin rights. We rebooted our machine and tried the backup task once again and this time it worked. Remember to make sure that the Tivoli IT Director Agent has the right authority on the mapped LAN drive.

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## Chapter 4. IIS Applications Management

This chapter provides examples of the IIS applications management functions that are implemented for usage with Tivoli IT Director.

We will concentrate on action that can be performed on your IIS servers running the Tivoli IT Director agent. These tasks include some of the following:

- Managing logfiles
- Launching the Web admin utility
- Utilizing the NT performance monitors
- Utilizing the NT performance objects

---

### 4.1 Management before Tivoli's IT Director

Microsoft Internet Information Server is one of the more popular Web hosting server packages available. A Web server is typically installed on a machine that is used solely for this purpose. Configuration and monitoring typically happens on the server machine itself, not remotely. Microsoft's IIS 3.0 includes a utility that allows you to configure the IIS properties remotely, using a Web browser interface. In order to use this interface from a remote machine you must have the correct Windows NT security permissions on the machine that you are using. You can start and stop the Internet services that are running on your IIS server using the Microsoft Internet Service Manager (as shown in Figure 128 on page 94).

You need to be able to manage your IIS server, regardless of how big or small it is. Information that is useful to webmasters and administrators should be collected and stored. The reason we differentiate between webmasters and administrators is that there are separate IIS procedures for recording system performance, Web site performance, and their associated log files.

Tivoli IT Director's application management is a useful tool to manage not only a single server, but an array of servers. When information about all your servers needs to be available in a single place, the application management function is the right function. From a central console, you can easily see the performance (or the performance problems) of any Internet server in your network.

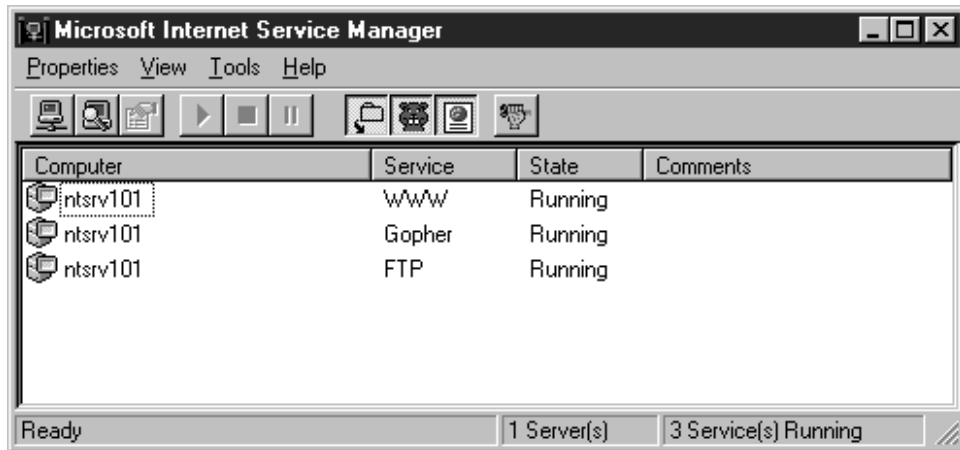


Figure 128. Microsoft Internet Service Manager V3.0

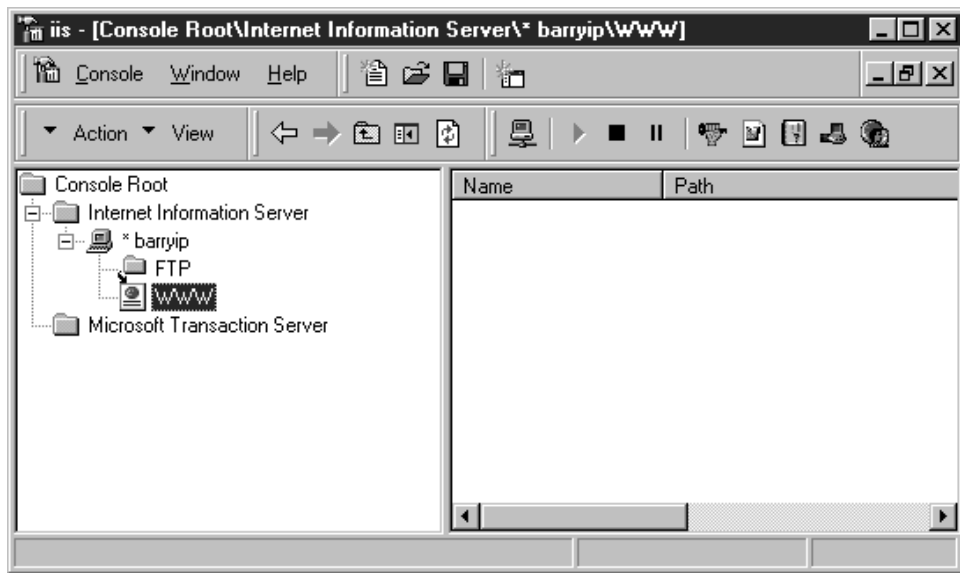


Figure 129. Microsoft Internet Service Manager V4.0

A system administrator would typically like to know how the server that is hosting the IIS Web site is performing. Three of the most common things to monitor using the performance monitor as shown in Figure 130 on page 95 would be:

- Processor utilization
- Memory usage
- Hard disk activity

A webmaster on the other hand would need to know things like:

- Number of hits in a day.
- IP addresses of computers visiting the site.
- Most popular pages on the site.
- Which files were accessed.

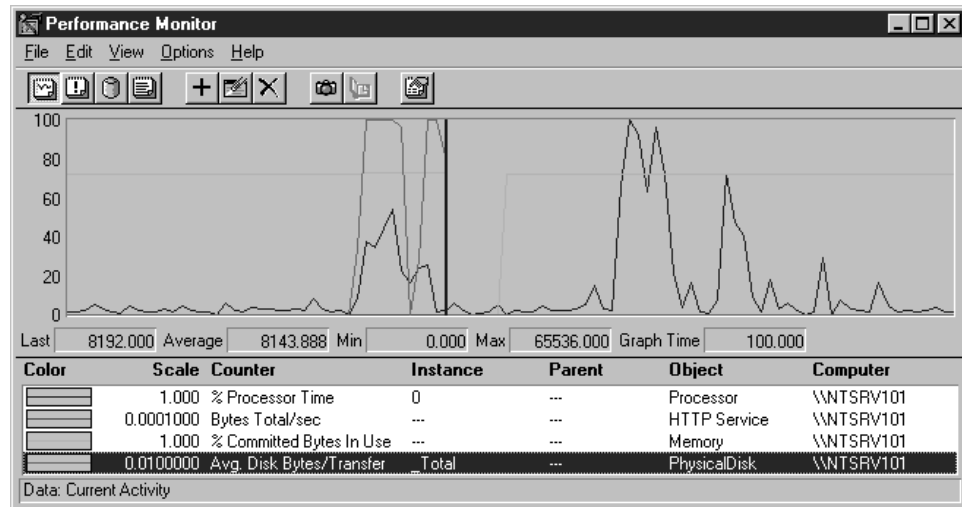


Figure 130. Windows NT Performance Monitor

Figure 128 on page 94 shows the Microsoft Internet Service Manager for IIS V3.0. This is typically where you would maintain your Internet server from. Tivoli IT Director provides the same functions as those that can be performed from the Internet Service Manager, using Tivoli IT Directors Applications Manager. This function is provided in the form of the MIIS AMP that is delivered with Tivoli IT Director. The difference is that you can use the application management function to manage many servers concurrently or in groups and take predefined actions if one of the metrics you are monitoring goes outside of a threshold.

Figure 130 shows the Windows NT performance monitor. The performance monitor is a very useful tool for monitoring not only the system performance of your server, but also the WWW services that are running on the server. The performance monitor used in conjunction with the IIS logging utility provides the system administrator or webmaster with the necessary information to enable them to maintain up time, or make necessary changes accordingly.

While you can view the performance statistics of other systems in your domain using the Windows NT performance monitor, you can get the statistics of any system you can reach that has the Tivoli IT Director agent running on it.

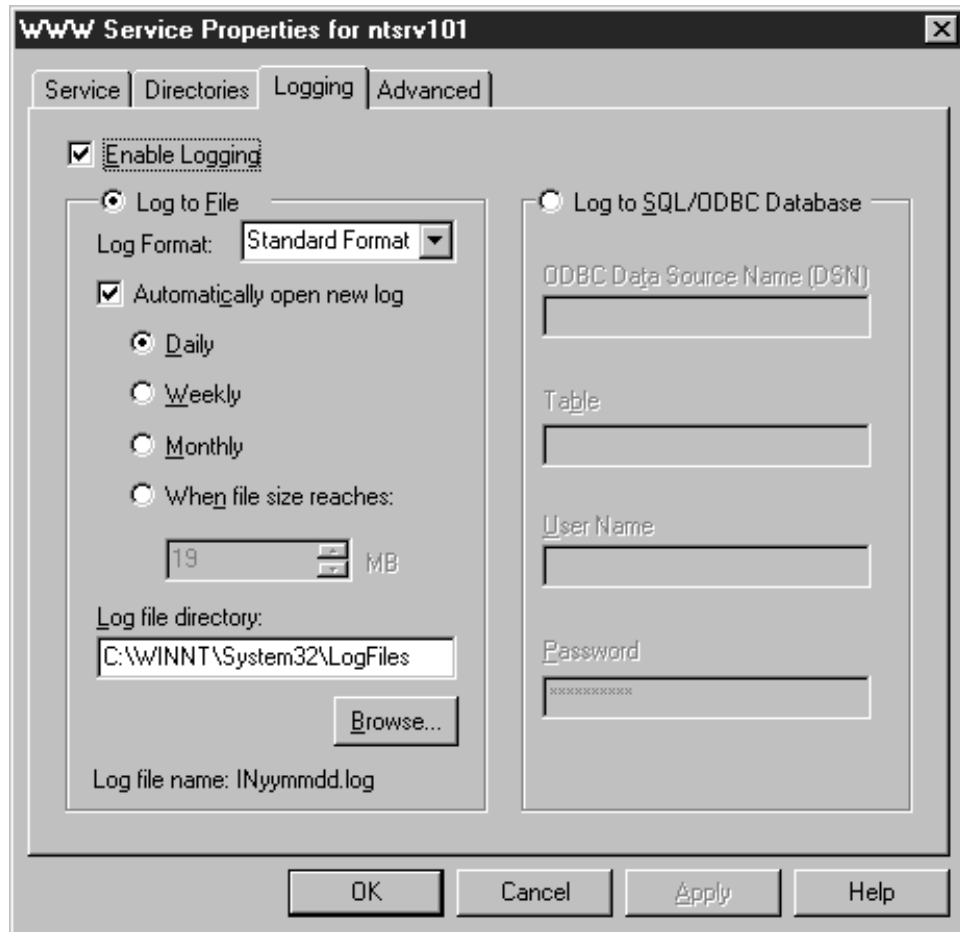


Figure 131. Logging is Enabled in IIS via the Service Properties

Figure 131 shows the Logging tab of the IIS Web server. It is here that you would typically set up logging for your IIS server and where you would specify the format and destination of the log. Figure 141 on page 103 shows how this is done using Tivoli's application manager.

Tivoli IT Director provides you with the same functions that you have when using your Web browser to configure your IIS, as well as the ability to start or stop services, set up monitors and action plans to go with the monitors for any system that has the Tivoli IT Director agent.

The one big advantage is, of course, that all this can be done from one central location, the Tivoli IT Director management console. The console can also be launched from any Tivoli IT Director agent on the network, provided you have selected the option to have that code installed along with the agent. Therefore, you have many different options available to you to provide applications management with Tivoli IT Director.

## 4.2 Launching the IIS Application Manager

In order to use Tivoli IT Director to manage IIS, we need to launch the Tivoli IT Director console. Once the console is running (see Figure 132), click on the **Application Management** icon as shown in the following window or click on **Application Management** from the Tasks pull-down menu.

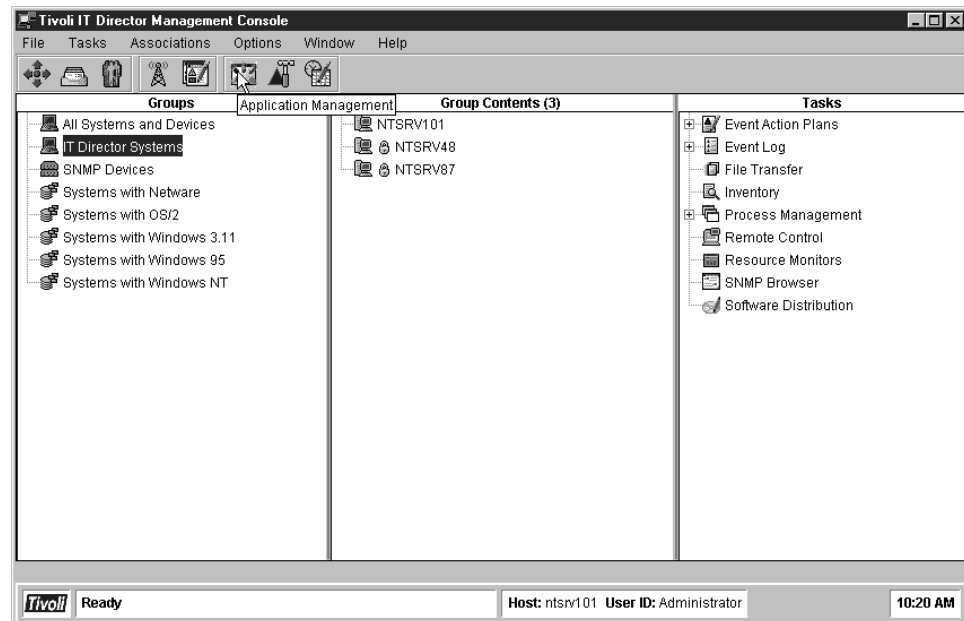


Figure 132. Invoking Application Management in Tivoli IT Director

The AMP must first be configured for use with a working IIS server. After invoking the Application Manager, you are presented with the available AMPs that can be opened (Figure 133 on page 98). By default, MIIS (The IIS AMP) is available, as is Netscape Suitespot. For more details on Netscape Suitespot see Chapter 3, "Netscape Applications Management" on page 55.

Select the MIIS AMP shown in Figure 133 on page 98 and click on **Open**. While the AMP is being opened, Figure 134 on page 98 is displayed.

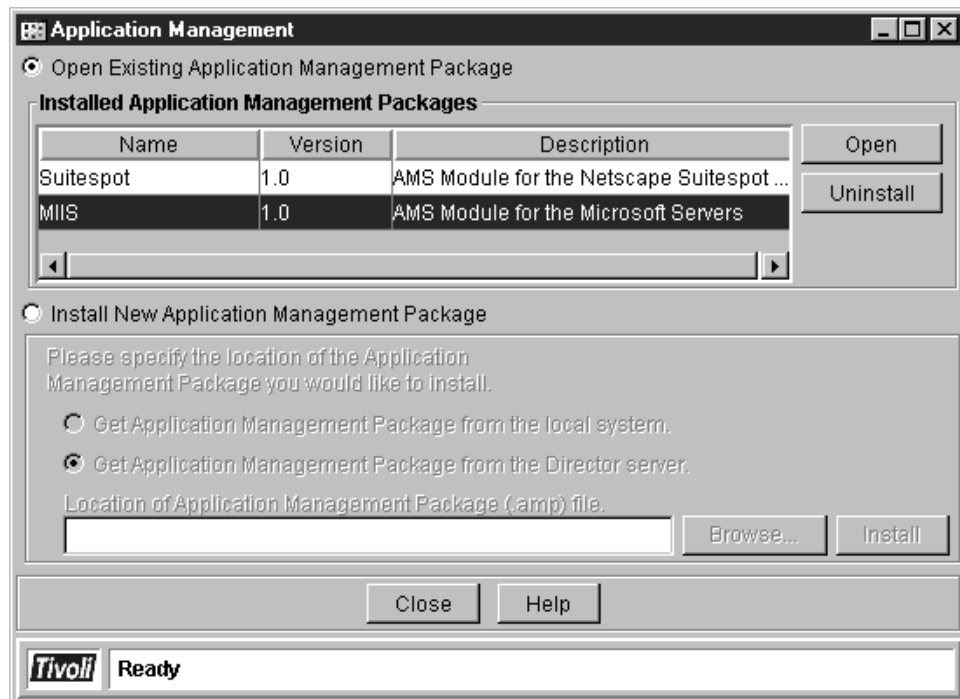


Figure 133. The MIIS AMP is Included with Tivoli IT Director



Figure 134. The AMP Busy Opening

Once the AMP is initialized, you will be presented with the window shown in Figure 135 on page 99. The window is divided into four panes. In the top left corner, you are given a choice of the components that you can configure using this AMP. In this case they are:

- Application Tools
- IIS 3.0 as well as 4.0
- Microsoft Proxy Server Version 1.0 and 2.0

The pane on the bottom left of the window contains the information and action buttons for the components of the AMP.

- *View Properties* - Allows you to view information regarding the component that you have highlighted in the top left pane.
- *View Files* - Shows you a list of the files that will be installed onto the target system and the location of these files.
- *View Install Programs* - Is a list of the files that are needed when the software is distributed to the target system. Once the software distribution package is created, these files will be invoked to install the software onto the target system.



- *View Software Discovery* - This is a list of the files that are searched for on the target system to establish if the system has the correct version of software (for example, IIS 3.0) for the system to be managed by Tivoli IT Director.
- *Change Target Locations* - Shows you the target directory for the AMP on the target system and allows you to change the directory, if the AMP supports it.
- *Customize Tasks* - You can customize the tasks that the AMP will perform by adding new instances of the listed tasks.
- *Customize Monitors* - The same principals for customizing tasks apply to customizing monitors.
- *Commit Changes* - Allows you to save the changes you have made and commit them to the software package that you will create.
- *Create Distribution* - Is where you would create the software distribution package after you have configured the AMP for use.
- *Remove* - Allows you to remove a component of the AMP the distribution package.

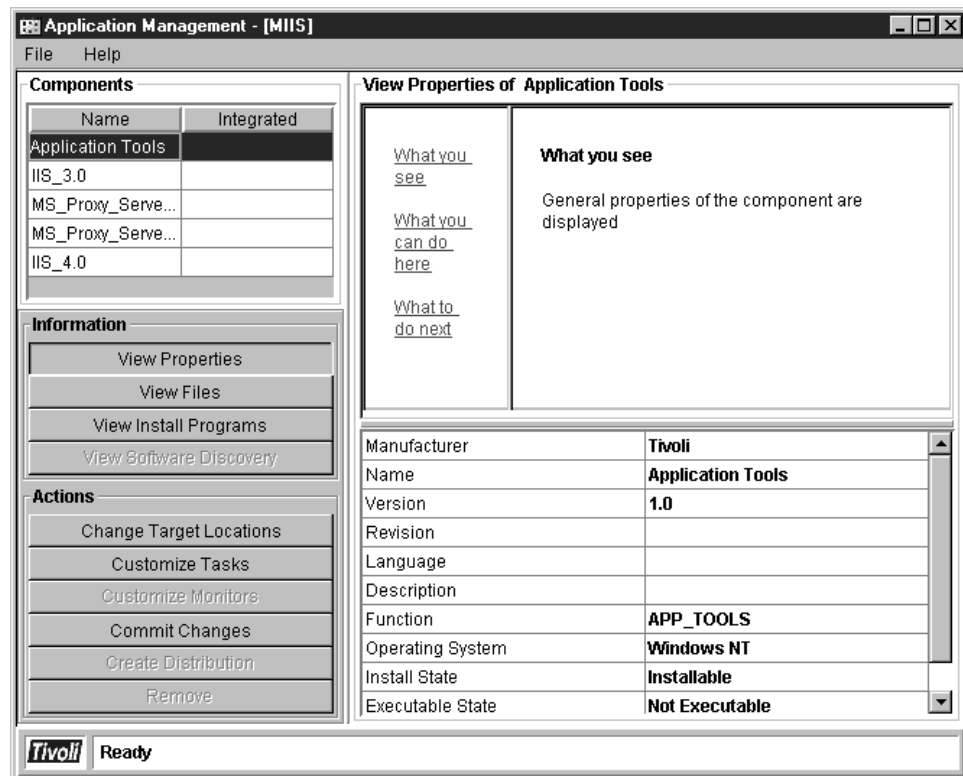


Figure 135. Application Management Window for the MIIS AMP

In Figure 135, the top right pane of the window displays help on the selected topics. What you see, what you can do here, and what to do next are simple explanations for the highlighted choices.

The bottom right pane of the window displays dynamic information about the highlighted choices on the bottom left pane. The content varies for each configuration depending on whether you select an action button, or an information button.

## 4.2.1 Configuring the Application Tools for MIIS

The first component option that is available as part of the MIIS AMP is the *Application Tools* component. The Application Tools component is not configurable and the primary function of this component is to create an environment for the tasks and monitors to run under on the managed system. Part of this task would be to add performance monitors in the form of DLLs to a system that did not have suitable NT performance monitors for the AMP to utilize. This, however, is not the case with IIS. Thus the Unregister Performance DLLs task does not have any effect on the IIS AMP in the managed system. The Netscape Suitespot AMP uses additional DLLs. For more information, see 3.1.1.4, "Create Distribution" on page 70. In Figure 136 **Application Tools** is highlighted in the upper left pane, in conjunction with the action **Change Target Locations**. This combination shows the target location of the software once distributed to the target system. In this case, the product base directory was c:\inetAMP\msamp.

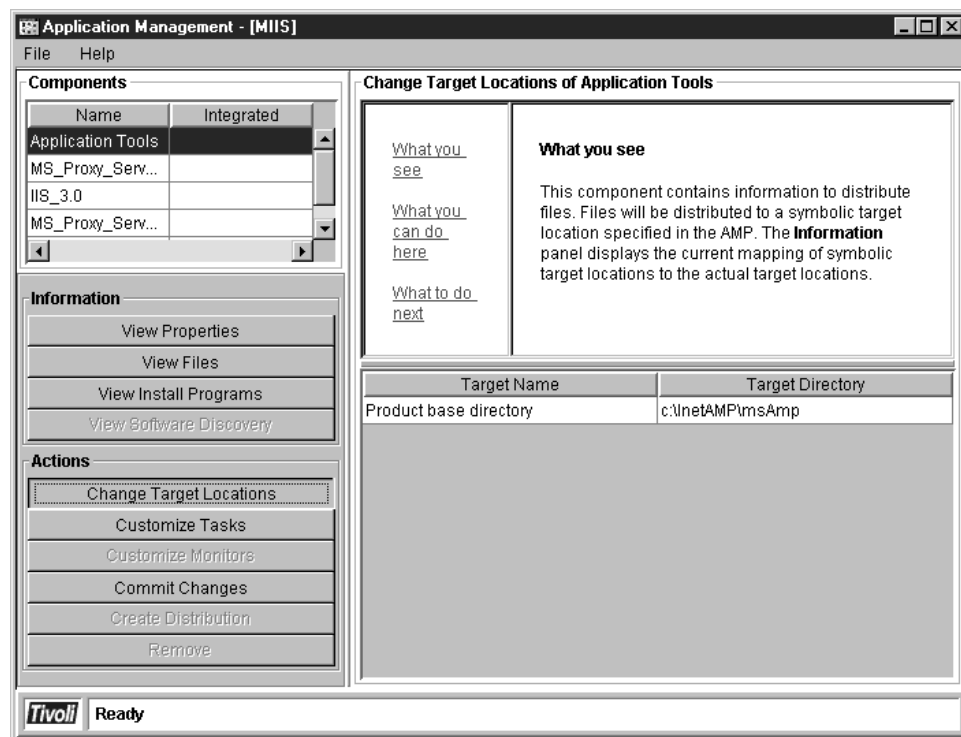


Figure 136. Application Tools for the MIIS

In Figure 138 on page 101, when the **Customize Tasks** button was selected, you are able to see a list of the available tasks that the component will perform. In this case, the function of the *Application Tools* is to unregister performance DLLs. In the lower right section of Figure 138 on page 101, there is a subordinate of Unregister Performance DLLs called new instance. This is the only bit of configuring that can be done with the Application Tools AMP Component.

To add the instance we right clicked on **Unregister Performance DLLs** and selected **Create new task instance**. Once you have selected create new task instance, you are presented with Figure 137 on page 101. If you click on **Unregister performance DLLs**, it will perform the task after the software distribution has taken place to the IIS server.

Although you can add the task, unregister performance DLLs and even execute this task on a server running IIS, it has no effect on a managed system utilizing only the IIS AMP. Should the NT performance counters on a system not be sufficient for an AMP to monitor an application, the AMP will include a set of its own monitors. These monitors are referred to as performance DLLs that are copied to the managed system. The Unregister Performance DLLs task would remove those monitors. The IIS AMP does not include extra performance DLLs. For more on performance DLLs refer to 3.1.1.4, “Create Distribution” on page 70.

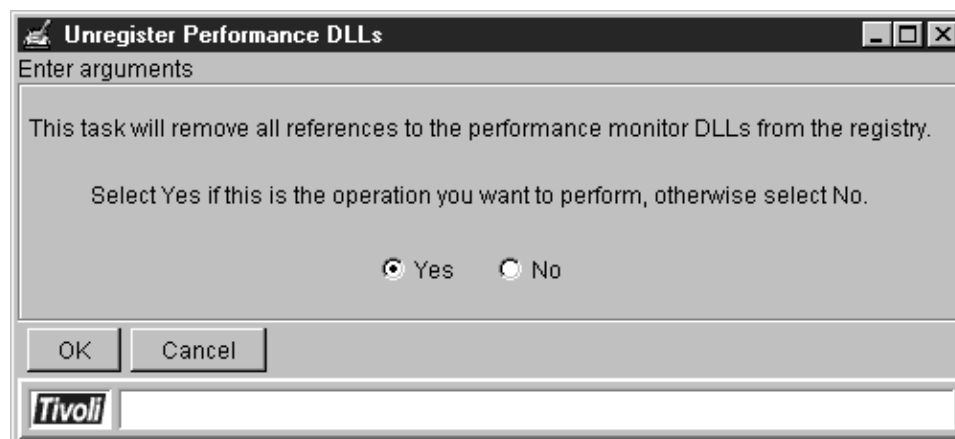


Figure 137. Unregister Performance DLLs

Having configured the Application Tools component, you are ready to save your changes by selecting the **Commit Changes** button in the lower left section and then by clicking on the **Commit Changes** button in the lower right pane (see Figure 139 on page 102).

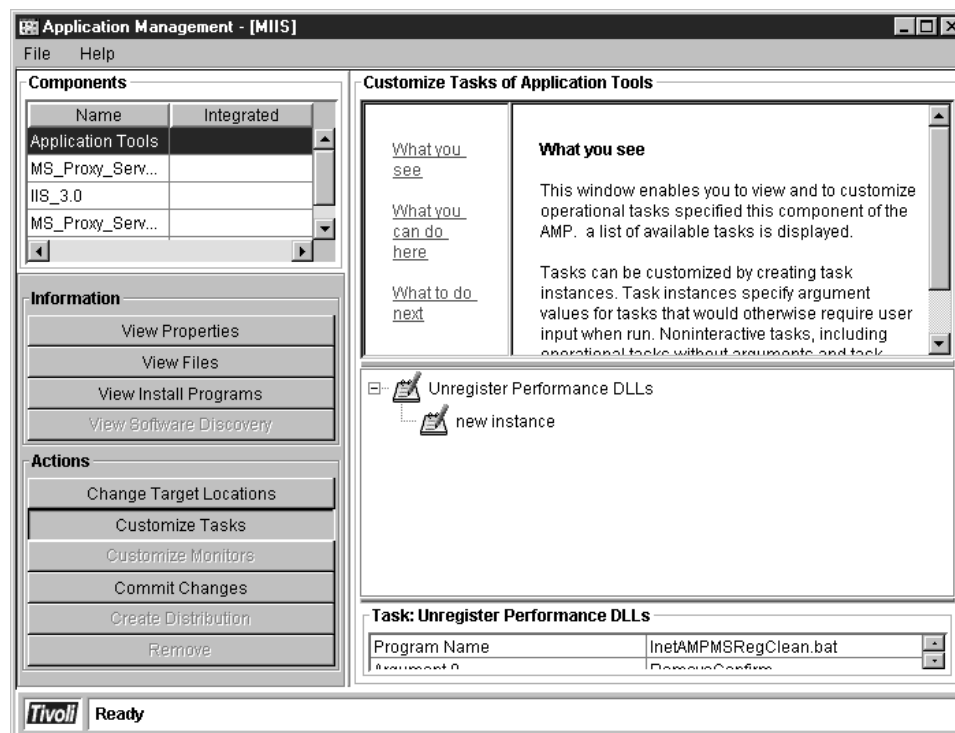


Figure 138. Creating a New Instance for Application Tools

Once the option to Commit Changes is selected, the changes that you made are saved for later integration into the software distribution package. Figure 140 on page 102 is displayed while the changes are committed. For an explanation of what management and software file packages are, please refer to 1.5, “What is a Management File Package” on page 4.

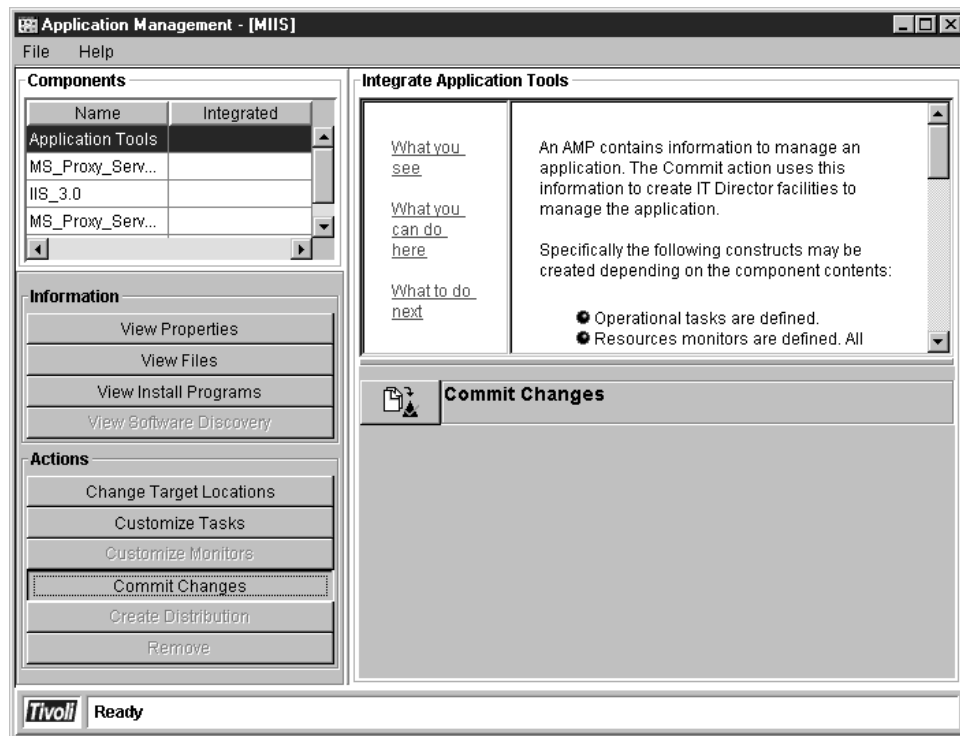


Figure 139. Committing the Changes to MIIIS Application Tools

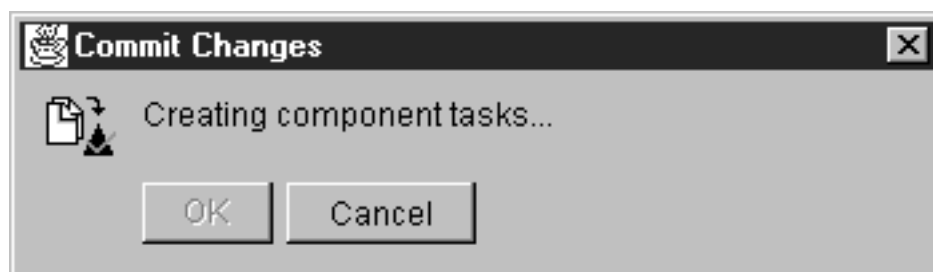


Figure 140. The Component Tasks for Your Changes are Created

Once the changes have been committed, you can create the software distribution package. Creating the software package will be explored in 4.2.2, “Configuring the IIS\_3.0 Component of the AMP.”

## 4.2.2 Configuring the IIS\_3.0 Component of the AMP

Configuring the IIS\_3.0 component of the AMP isn't any more complicated than configuring the Application Tools. Highlighting the IIS\_3.0 component allows you to see the Information and Actions buttons that are available for the component of the AMP.

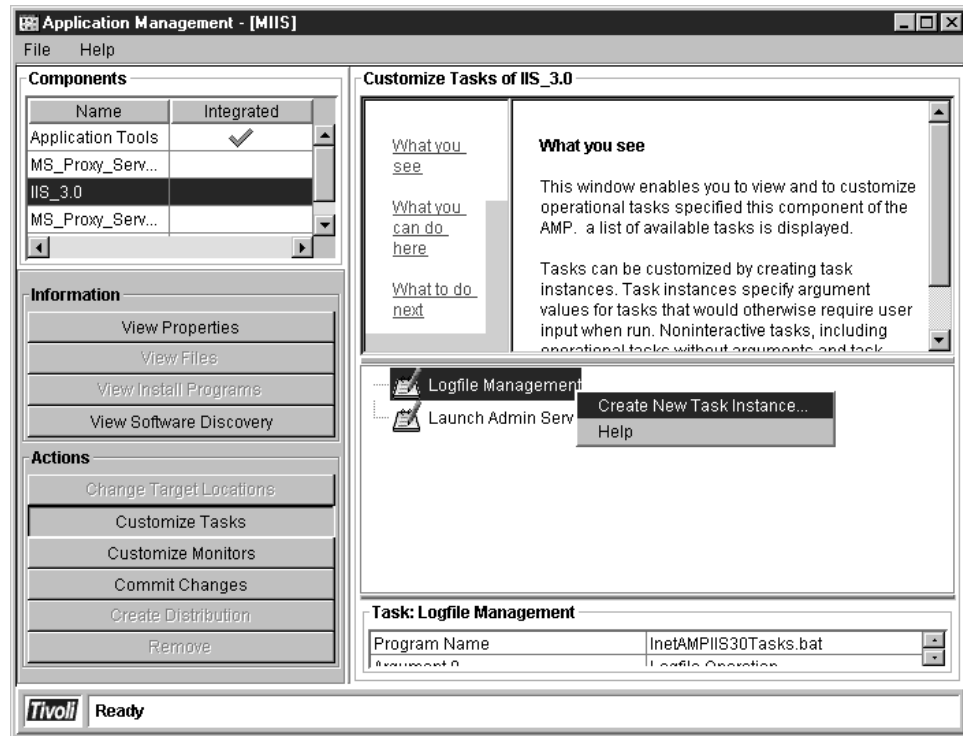


Figure 141. Configuring the IIS\_3.0 Component

Notice the check mark next to Application Tools in Figure 141. The check mark is only visible once you have committed changes.

By selecting the **View Properties** bar, with IIS\_3.0 highlighted, you are presented with general information about the IIS\_3.0 component. The properties for IIS\_3.0 are shown in Figure 142.

Manufacturer	Microsoft
Name	IIS_3.0
Version	3.0
Revision	
Language	
Description	
Function	IIS_3.0
Operating System	Windows NT
Install State	Not Installable
Executable State	Not Executable
Is Server	no

Figure 142. The Properties View for IIS\_3.0

As you can see in Figure 142, the information supplied is very basic. Some things that are interesting to note are the *install state* and the *executable state*. Execute is not executable and Install is not installable. The reason that the IIS\_3.0 component is shown like this is that the software distribution package that will be created will

not be executable by a user on the target system (*Not Executable*), nor will it be in the form of a program that can be installed onto the target system by a user (*Not Installable*). The files in question, however, can be traced to  
\\TivoliWg\amsdata\MicrosoftMIIS11.0\MicrosoftIIS\_3.033.0\w32\\*.\*.

To customize the tasks available for IIS\_3.0, select the **Customize Tasks** button as shown in Figure 141 on page 103. Right-click on the **Logfile Management** icon and then select **Create New Task Instance**.

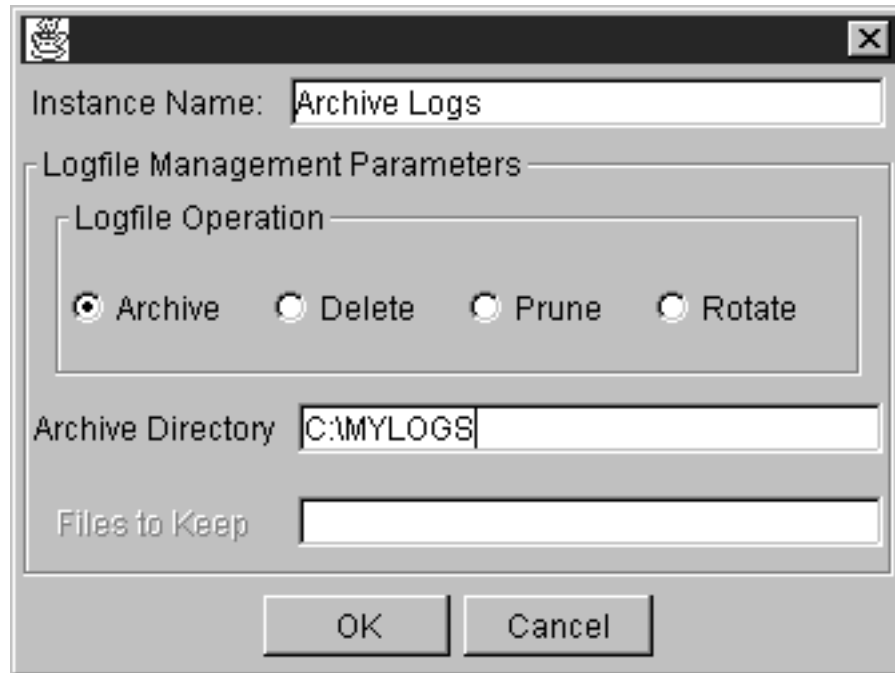


Figure 143. Creating a New Task Instance for Logfile Management

After you have selected the option to create a new task instance, you are presented with the instance configuration panel as shown in Figure 143. First you need to name the new instance you are about to create. It is important to call it something that will make sense to you so that when the time comes to implement it, you will be able to find it in the available options of your IIS server (see Figure 159 on page 116). We decided to call it *Archive Logs*.

The Logfile Management Parameters consist of the following logfile operations:

- *Archive* - Which allows you to copy the current IIS log files to the directory specified as the Archive Directory. We called this directory \mylogs. The logfiles will be compressed (zip format) when they are copied to this directory.
- *Delete* - Simply deletes the current IIS logfiles, thus allowing new files to be created in their place.
- *Rotate* - Allows the current logfiles to be copied. The files are kept in the same directory as the active logfiles and remain there until they are pruned.
- *Prune* - This entails deleting the older logfiles that were rotated. If Prune is selected, the *files to keep* field is activated and the *Archive Directory* is grayed out. In the *files to keep* field dialog box, you would specify the number of logfiles to be deleted or pruned.

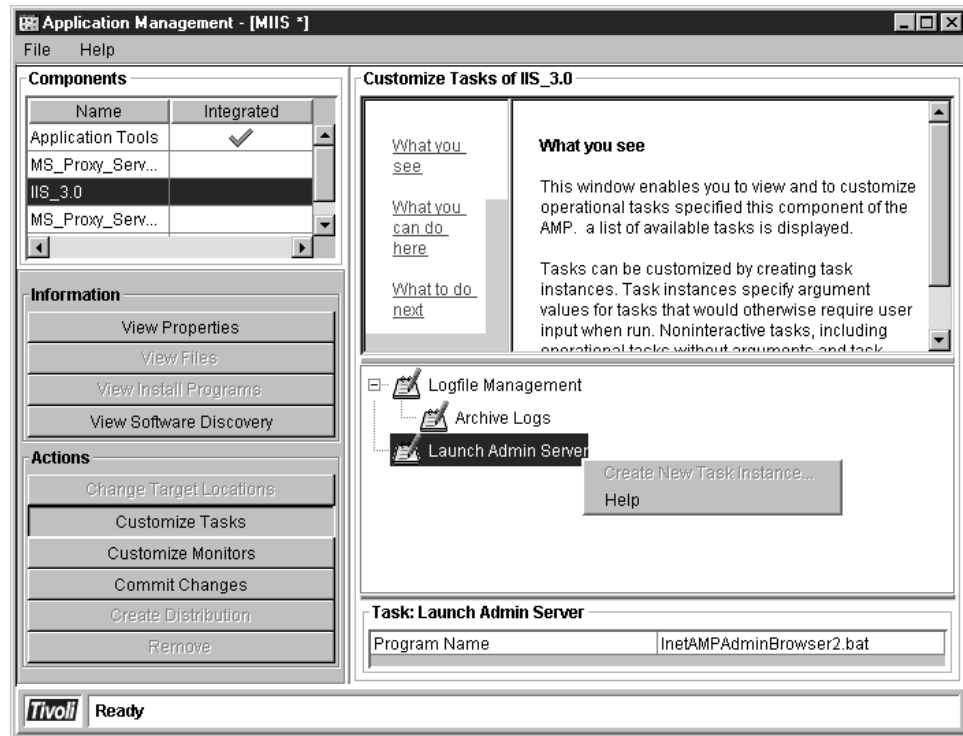


Figure 144. Launching the Admin Server is Not a Configurable Option

In Figure 144, the **Launch Admin Server** option is highlighted. As you can see, the Launch Admin Server option is not configurable and it can't be removed.

It would in fact be silly to make it configurable or to remove it as this is one of the most important functions of the MIIS AMP. This option will allow you to launch the Web interface of the Internet Service Manager from Tivoli IT Director's console (see Figure 161 on page 117).

After you have customized the tasks you can customize the monitors. If you refer to Figure 146 on page 106 you can see that there are two types of monitors that can be customized. They are:

- Windows NT Performance Counters
- Windows NT Performance Objects

If you right click on the WindowsNTPerformanceObject you can see that all the options are grayed out. An NTPerformance Object is made up of counters. These counters are individual monitor attributes. Since an object is made up of many counters, it is logical that you can't add a threshold to an object with more than one value. Therefore, there are no parameters to be set. The counters for this object can be found *under* WindowsNTPerformanceCounters.



Figure 145. Performance Counters and Performance Objects for IIS\_3.0

The Windows NT Performance counters allow you to configure two types of logfile counters. You can monitor the free space of the IIS logfile, and set a threshold to warn you when the logfile free space reaches the limit you select. You can also set a threshold for the actual size of the logfile. See Figure 147 on page 107 and Figure 149 on page 108.

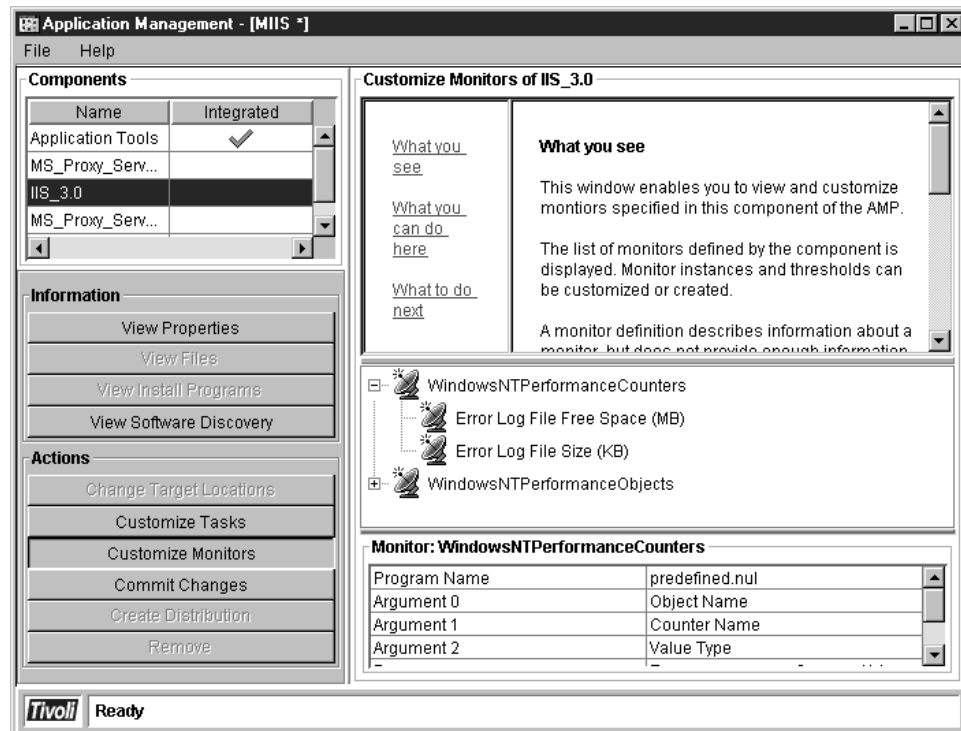


Figure 146. Customize Monitors for IIS\_3

To edit the threshold for logfile free space, right click on **Error Log File Size** and then select **Add Threshold**. You will be presented with the following window.



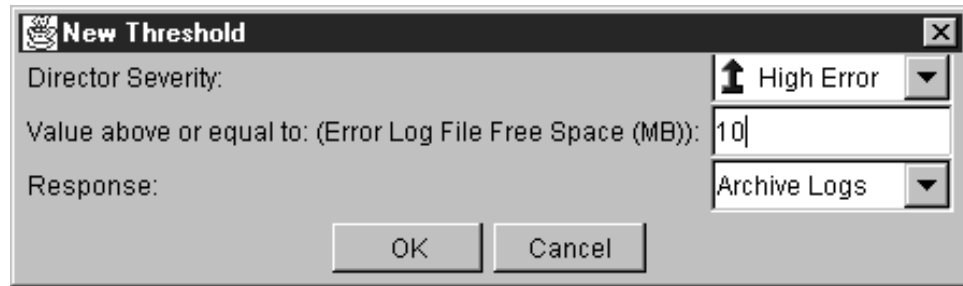


Figure 147. Setting the Threshold for the Error Log File

You have the choice of what severity to set. The choices are:

- High Error - Denoted by a red arrow pointing upwards.
- High Warning - Denoted by a yellow arrow pointing upwards.
- Low Warning - Denoted by a yellow arrow pointing downwards.
- Low Error - Denoted by a red arrow pointing downwards.

You can specify the size of the free space in the logfile by entering a value in the Error Log File Free Space box, as shown in Figure 147. The value that you enter must be in megabytes. This is interesting, because in other places in the Tivoli IT Director application manager, you are asked for sizes in KBs. So be careful as to what you enter.

Should the logfile's free space reach or exceed the size specified in the logfile free space input box, an action will occur. This action is specified in the *Response* drop-down list in Figure 147. As you can see, the option *Archive Logs* is already in the Response box. This is because we already created a Logfile management task previously as is shown in Figure 143 on page 104. Click on **OK** to add the threshold.

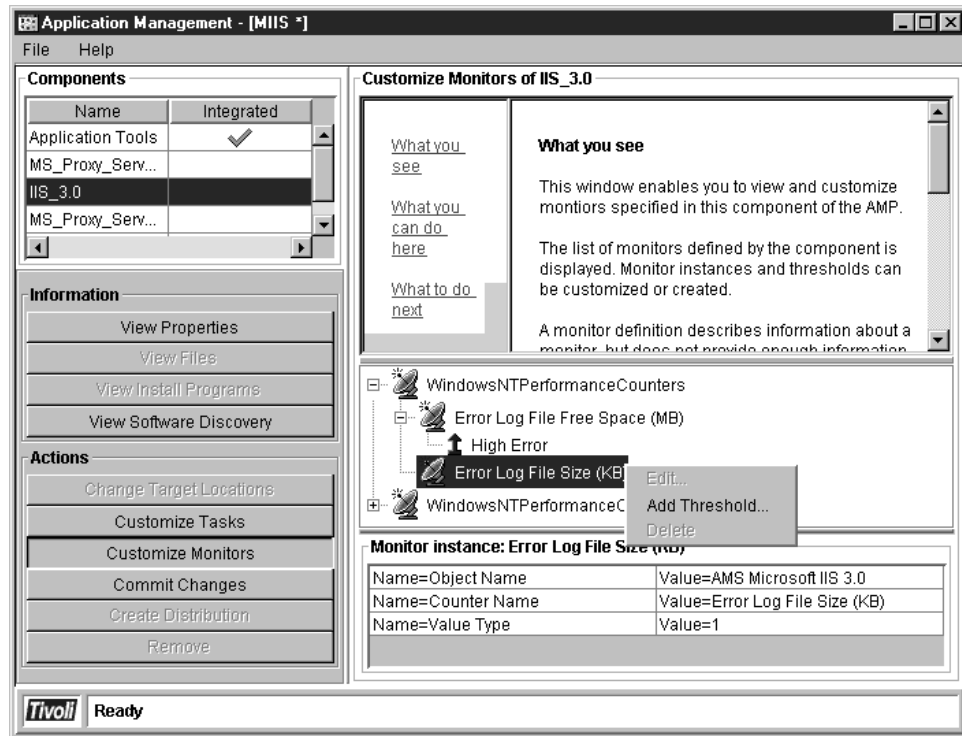


Figure 148. Adding a Threshold for the Logfile Size

The other option that is available under the Windows NT Performance counters is to add a threshold for the logfile size itself. The method for doing this is very similar to the previous counter, namely Log File Free Space. Right click on the **Error Log File Size** and select **Add Threshold** as shown in Figure 148. The panel that is now displayed is shown in Figure 149.

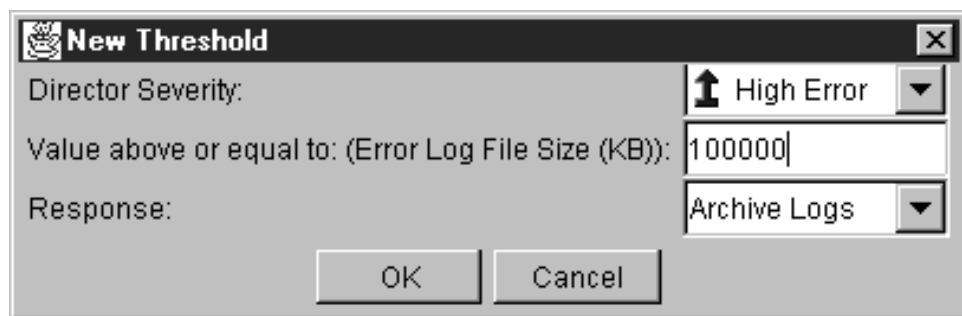


Figure 149. Adding the Size for the Log Size Threshold

Once again, you can choose the Director Severity. We chose **High Error**. Entering the size of the logfile threshold is done in KB, not MB. In this example, we made the log file threshold 100000 KB, or equal to 100 MB. The response that you can choose for your threshold is what was created in Figure 143 on page 104.

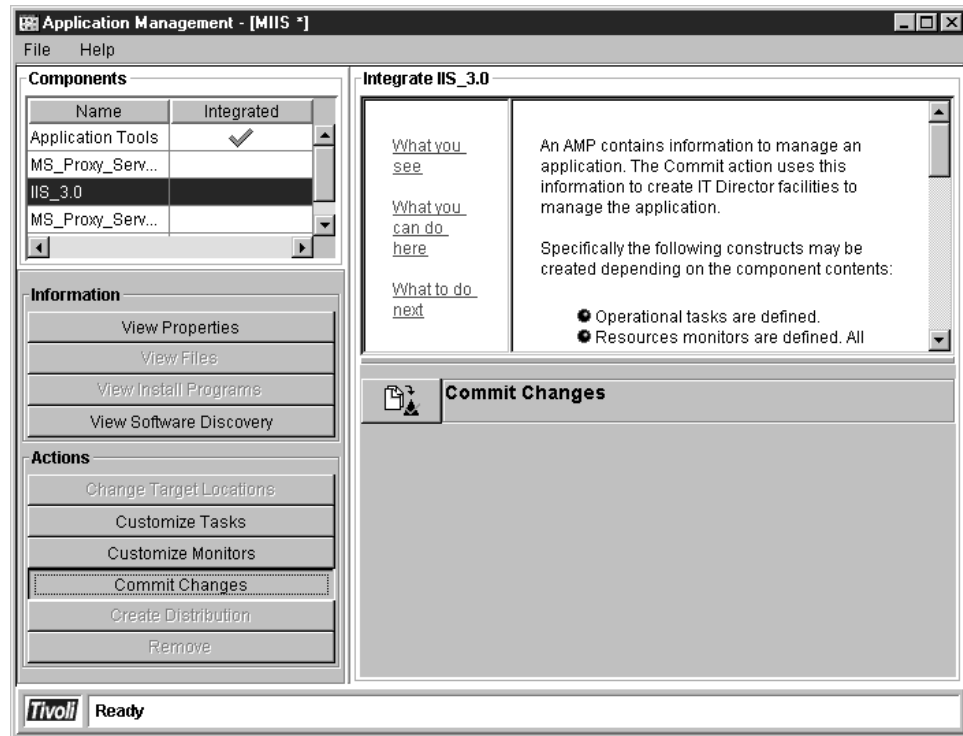


Figure 150. Committing the Changes for the MIIS AMP

Now that we have created the logfile management instances and included them in the logfile thresholds that we created, it is necessary to save them. To save the changes you need to commit the changes. In Figure 150, the Commit Changes option on the lower left pane of the application management window is activated. If you select the **Commit Changes** action bar, the Commit Changes button on the lower right side of the window becomes active.

Click on the **Commit Changes** button.

### 4.2.3 Creating a Software Distribution Package for IIS\_3.0

If you refer to Figure 151 on page 110, you will see that **Application Tools** as well as **IIS\_3.0** have check marks next to them, indicating that they have both been configured and the changes committed.

The Create Distribution button on the lower left pane is active and clicking on it will allow you to create the software distribution package.

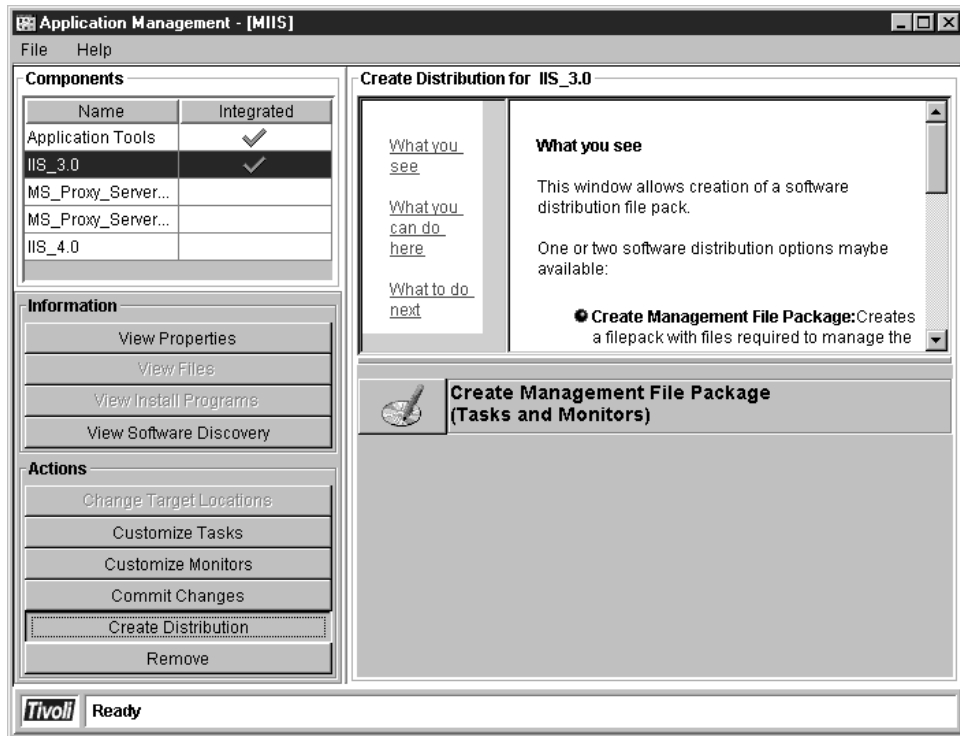


Figure 151. Create Management File Package for Distribution

The software package is called a management file package and its name gives us some indication of the function of the package. The management file package is the AMP's Application Tools, monitors, and tasks that have been *packaged* into a file that is able to be copied and installed (distributed) to the server running IIS\_3.0. Hence, we refer to the file management package as the software distribution package.

After you have clicked on the **Create Management File Package** icon, you are prompted to indicate if the Application Tools for the AMP should be included in the file package.

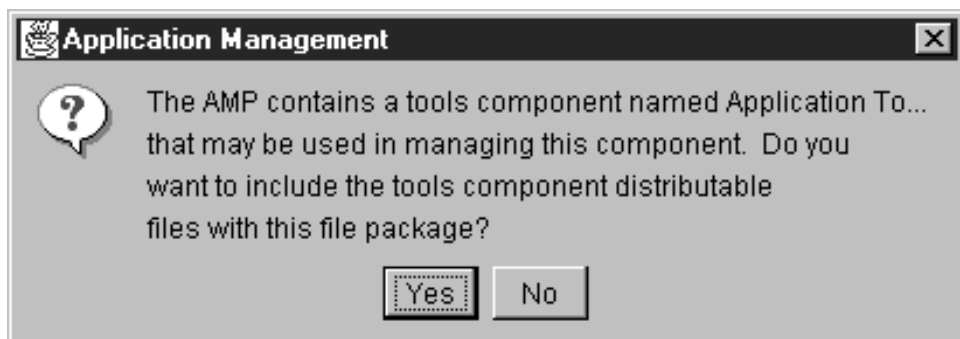


Figure 152. Choose Whether or Not to Include the Application Tools for MIIS

Click on **Yes** and it will include the application tools that were configured in 4.2.1, "Configuring the Application Tools for MIIS" on page 100.

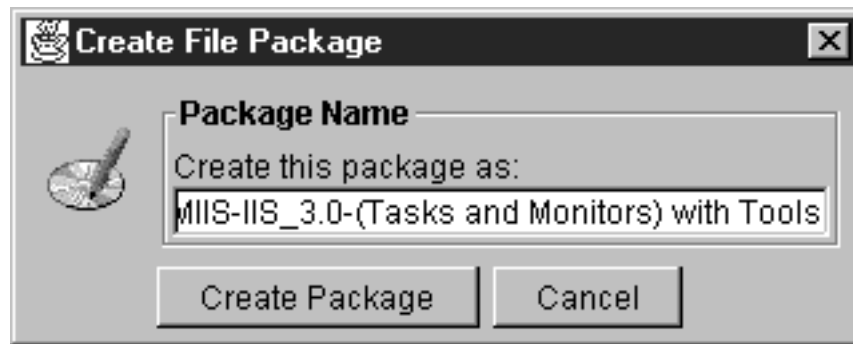


Figure 153. Choose a Name for the Software Package

You will then be prompted to supply a name for the file package. This is the name that will show up on the Tivoli IT Director console. The software package will be located under the Software Distribution option in the tasks pane of the Tivoli IT Director console window as shown in Figure 154 on page 112.

In our example, we opted to leave the name as the default of MIIS-IIS\_ 3.0-(Tasks and monitors) with Tools.

Click on **Create Package** to start the process of creating the file package, followed by **OK**.

#### 4.2.4 Distributing the Management File Package

At this point, the file distribution has been created and you have closed the Application Management window of Tivoli IT Director. If you take a look at Figure 154 on page 112, you can see that there are some new additions to the Tivoli IT Director's console.

1. MIIS\_3.0 has been added to the *Groups* pane in the management console.
2. The *Group Contents* pane now displays servers in your network running IIS 3.0.
3. The MIIS-IIS\_3.0 Tasks and Monitors appears under the Software Distribution task, in the tasks pane.

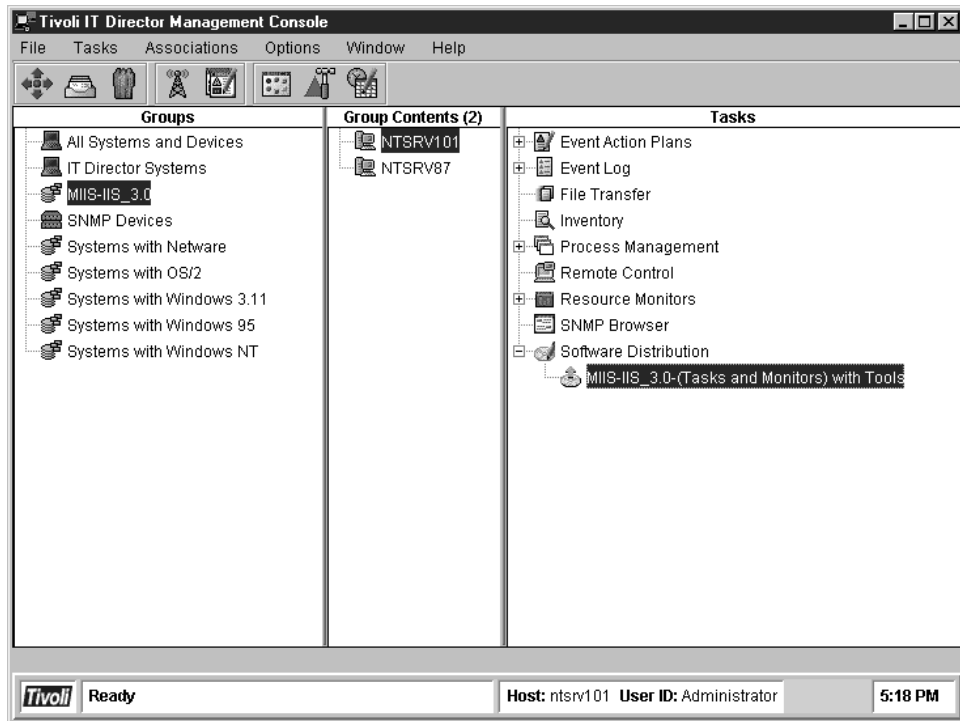


Figure 154. The Newly Created Package Appears on the Management Console

One more step remains before your AMP will work with your IIS server. The software package that you have created must be distributed to the target IIS systems. In Figure 155 on page 113 you can see the cursor has changed from an arrow to a hand, indicating that the software package has been dragged from the tasks pane and is about to be dropped onto the target system. In this case, the target system is NTSRV101. You could also drag it onto the entire group of IIS systems.

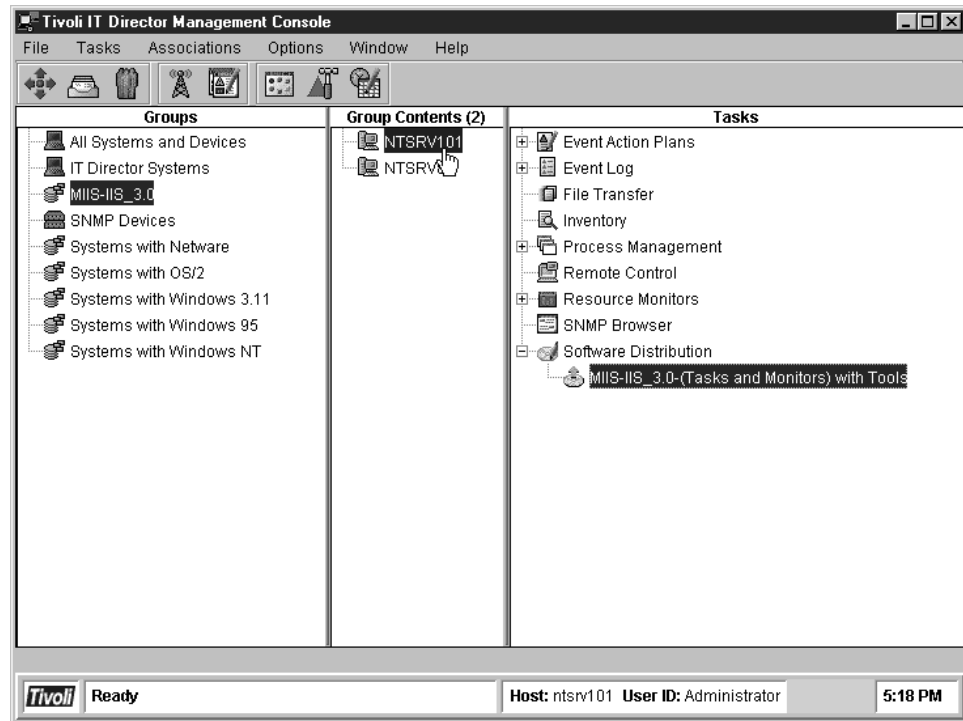


Figure 155. Drag and Drop the Software Package onto Your IIS Server

Once the package has been dropped onto the target system, you will be prompted for a time to execute your request. You can schedule the distribution to happen whenever you choose, by clicking on the **schedule** button. Unless you have a specific requirement for the software package to be distributed at a different time, click on **Execute Now**.

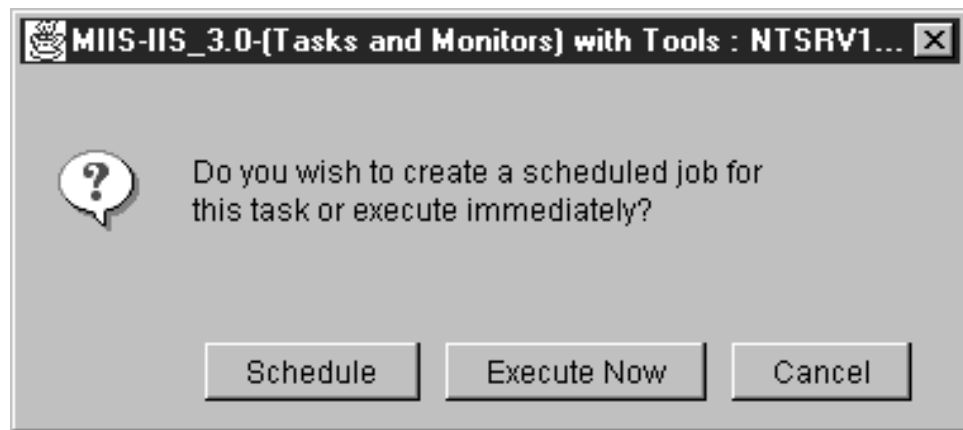


Figure 156. Activating Software Distribution

There are instances that you might want to schedule the distribution to happen later on, for example if you were concerned as to what the effects on a live system might be, or that the server may go down. For these reasons you may want to schedule the distribution for another time. We did not experience any problems installing the software onto the running IIS 3.0 server.

We clicked on **Execute Now**.

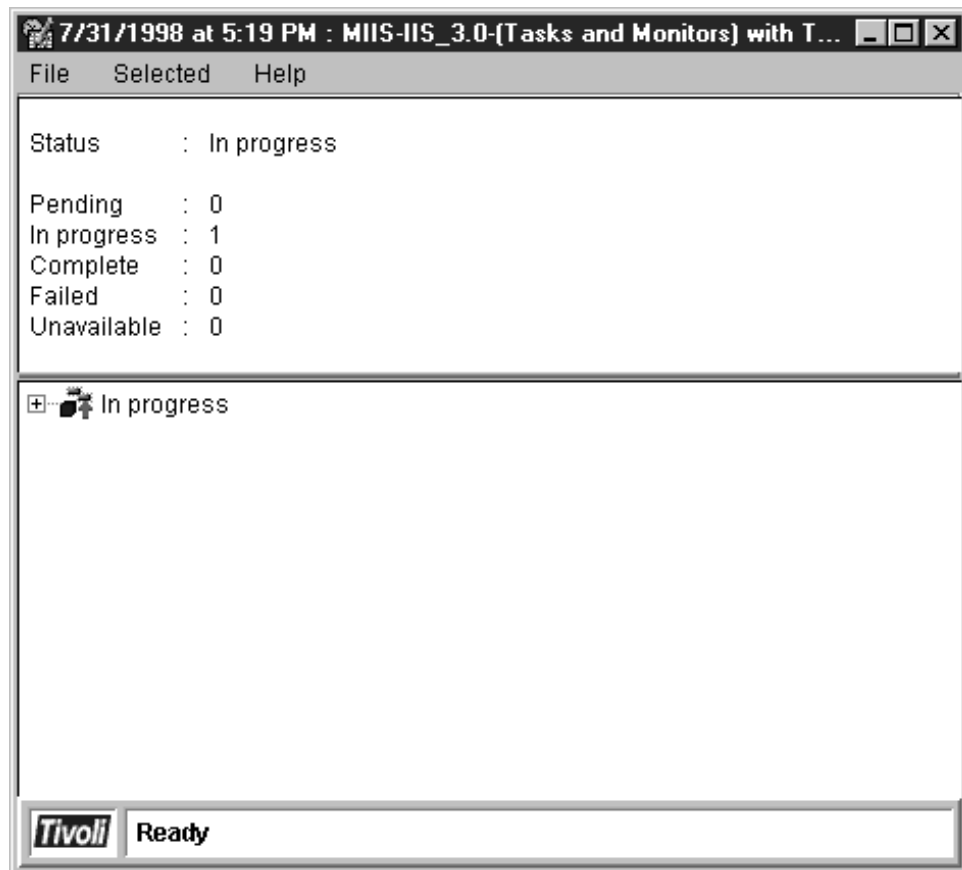


Figure 157. Your IIS Server is Configured for Management

In Figure 157 the software package is being distributed to the IIS server. The status shown is *In progress*. Once the software has been distributed successfully to the target system, the status will change to complete on the bottom pane. The top pane will show *Waiting for additional systems* as can be seen in Figure 212 on page 150.

Your IIS 3.0 server is now ready to be managed from within Tivoli IT Director. You can also view the log to see what has occurred.

### 4.3 Managing IIS 3.0 with Tivoli IT Director

The Tivoli IT Director AMP is now configured on your IIS server, which will allow you to manage the IIS server from your Tivoli IT Director management console. Remember that the console can also run on any Tivoli IT Director agent that has the console installed, including the server.

In this section we explain how to work with the tools that have been made available to us by configuring and installing the IIS\_3.0 AMP. We looked at:

- The MIIS Application Tools
- The Admin server
- Logfile management
- W3svc or WWW Service - starting and stopping the service



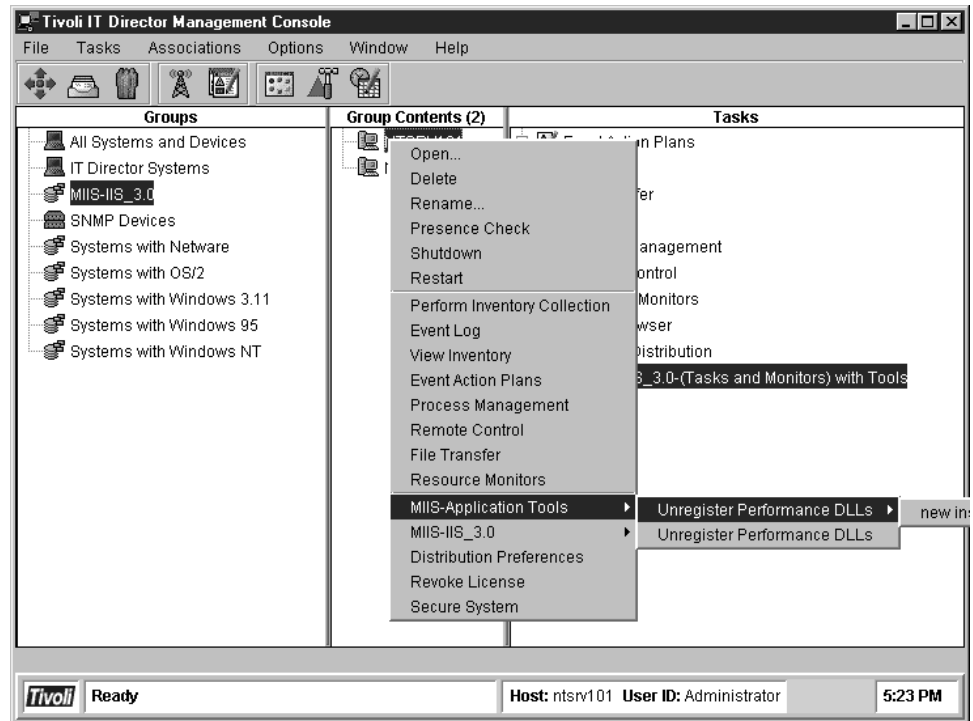


Figure 158. MIIS Application Tools

In the Tivoli IT Director management console, right click on your **IIS server** icon to bring up the Contents menu (see Figure 158). Near the bottom of the menu, you will find the IIS related functions. Select the **MIIS Application Tools**. You now have two options. At first glance, they seem to be the same option, but in fact they are not. The first instance of Unregister Performance DLLs contains the *new* instance that we created in Figure 138 on page 101.

The other instance of Unregister Performance DLLs, if selected, will allow you to run an instance of the Unregister Performance DLLs without having created the instance prior to the software distribution. You will be presented with exactly the same options as in Figure 136 on page 100, as you can see by looking at Figure 137 on page 101.

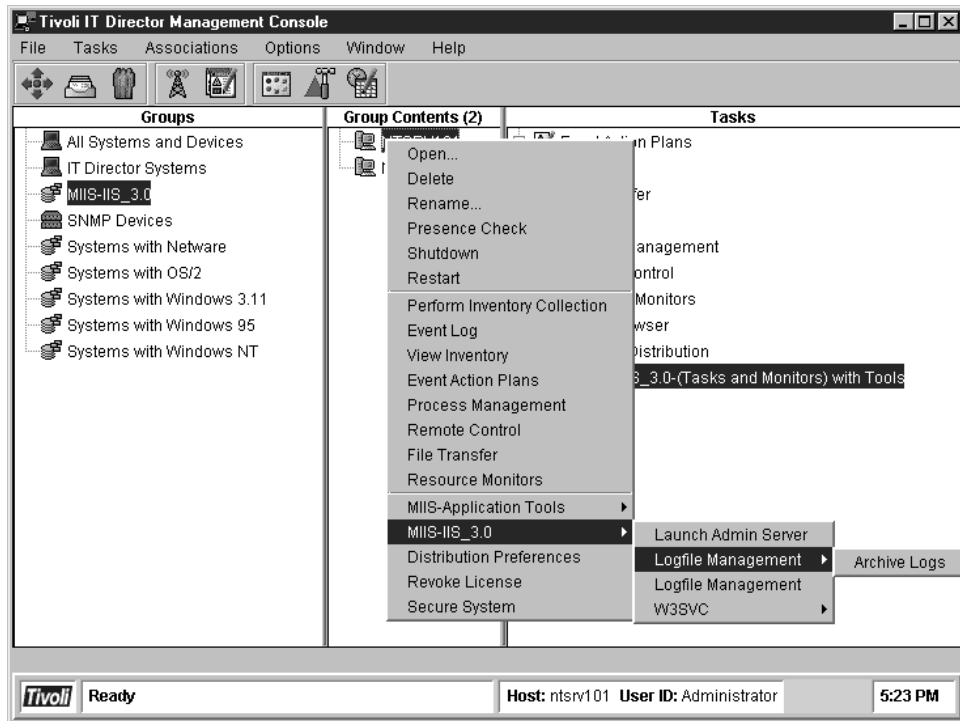


Figure 159. MIIS-IIS\_3.0 with the Accompanying Options

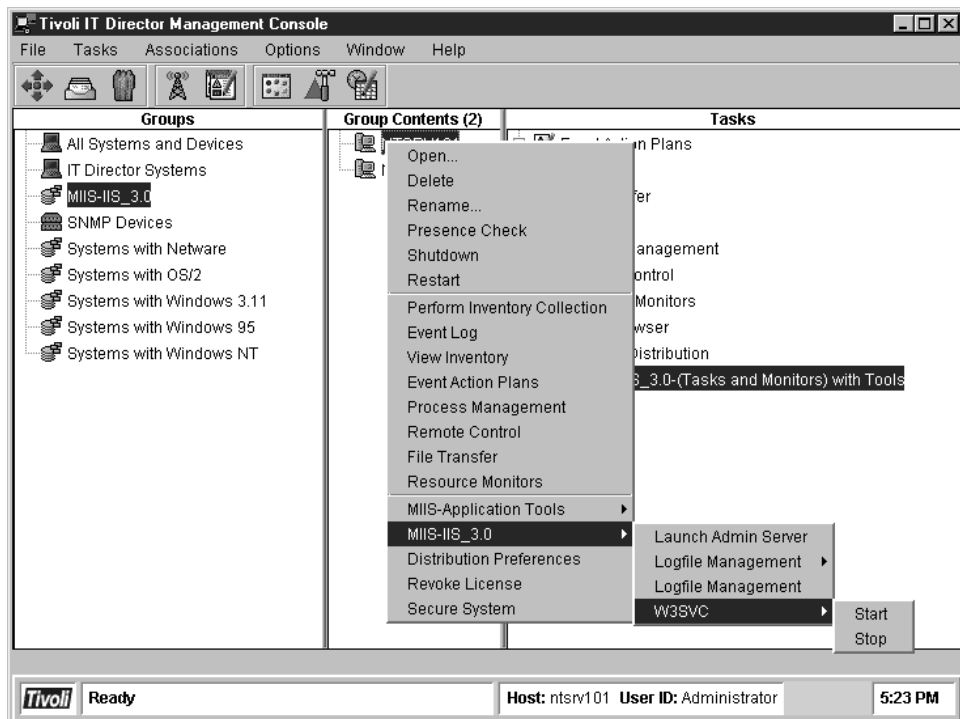


Figure 160. Starting and Stopping Web Services on the IIS Server



Figure 161. The Internet Service Manager

## 4.4 Working with Microsoft Proxy Server 2.0

The MIIS AMP also supports the Microsoft Proxy Server V1.0 and V2.0. In this section we concentrate on Proxy Server Version 2.0 as the differences between V1.0 and V2.0 are very small.

Configuring the AMP to be used with Microsoft Proxy Server is very much the same as configuring the IIS component in the previous section. If you refer to Figure 162 on page 118 you can see that when you select **View Properties**, the view is almost identical to that of the IIS properties, shown in Figure 142 on page 103. The version and product information is obviously different.

It is also a good idea, at the outset of this section, to note the minor differences between the Proxy Server V1.0 and Proxy Server V2.0 components of the AMP. There is only one difference between the two components that we were able to notice, as it relates to the AMP. That difference lies in the *Software Discovery* section of the two components. The subtle difference between the two is the file that is searched for on Tivoli IT Director agents to identify whether they have Microsoft Proxy installed on them or not. The file is called *wspsrv.exe*. The way that Tivoli IT Director tells the difference between Version 1 and 2 is the date stamp in the file and the size of the file.

- MS Proxy 1.0 is dated 1996/11/22 and size is 68880 bytes.
- MS Proxy 2.0 is dated 1997/09/15 and size is 100112 bytes.

Apart from this, there are no other differences from an AMP perspective.

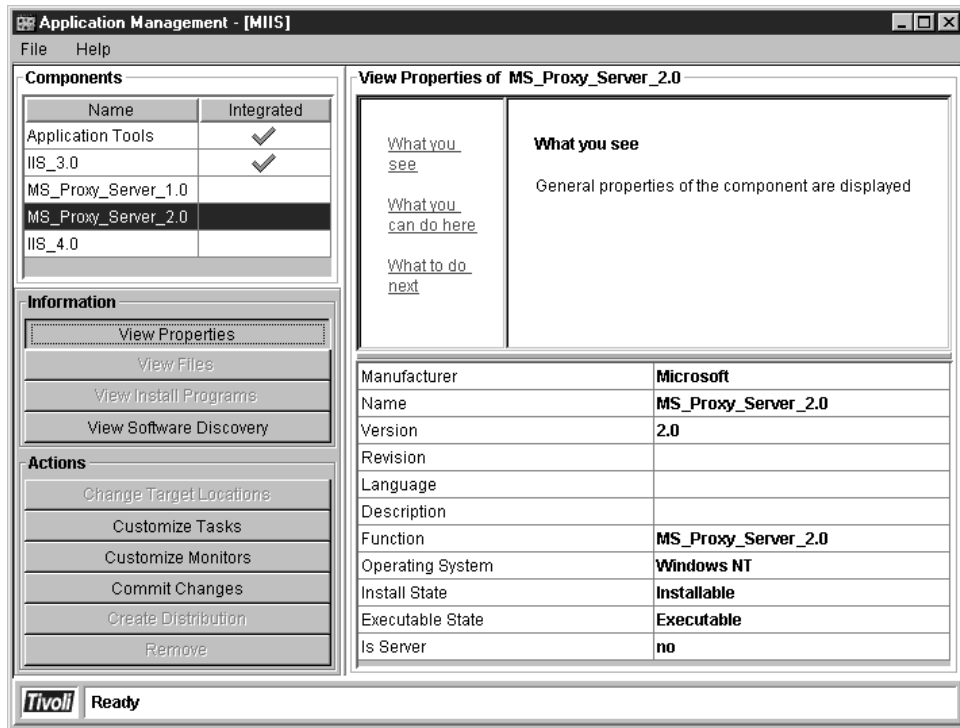


Figure 162. View Properties for MS Proxy 2.0

To create a new task instance for logfile management of the Proxy logs, select the **Customize Tasks** button on the lower left pane of the Application Management window. You would then right click on the **Logfile Management** icon in the lower right pane and select **Create New Task Instance** as shown in Figure 163.

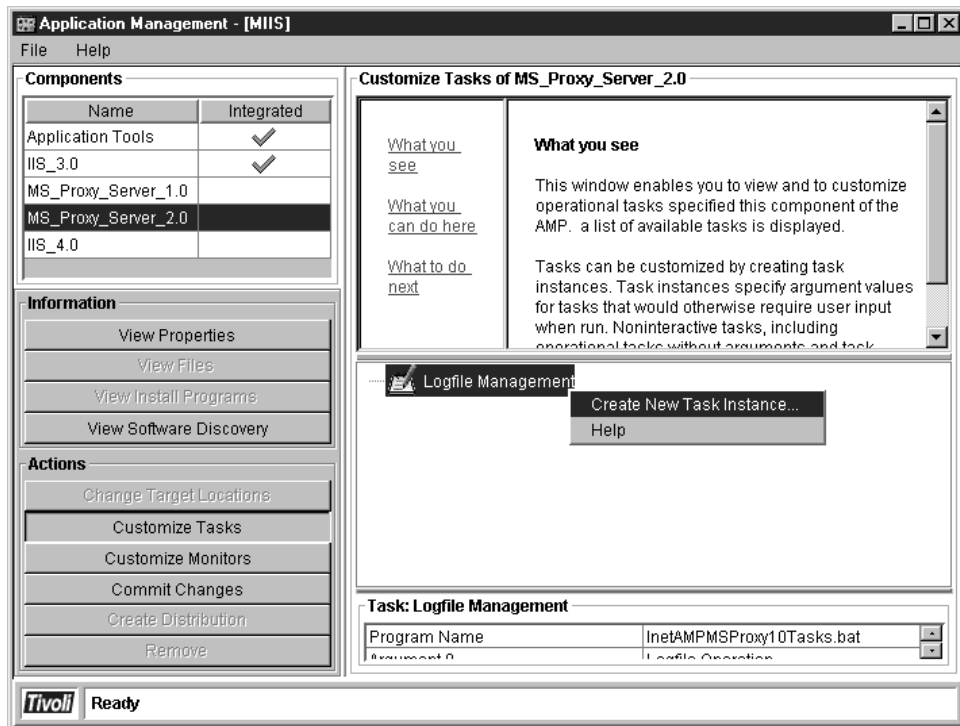


Figure 163. Creating a New Task for Logfile Management

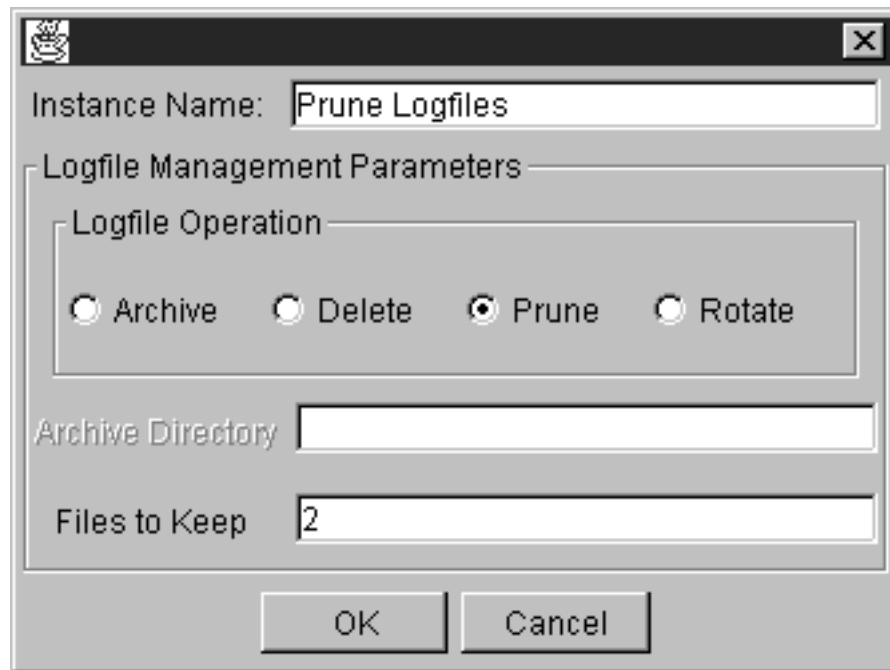


Figure 164. Creating a Prune Logfiles Instance

Figure 164 should be familiar to you from the MIIS AMP. The new instance for the Proxy logfile is the same as for the IIS logfile.

The Logfile Management Parameters consist of the following logfile operations:

- *Archive*- Allows you to copy the current log files to the directory specified as the Archive Directory. The logfiles will be compressed in ZIP format when they are copied to this directory.
- *Delete* - Simply deletes the current Proxy logfiles, thus allowing new files to be created in their place.
- *Rotate* - Allows the current logfiles to be copied. The files are kept in the same directory as the active logfiles and remain there until they are pruned.
- *Prune* - This entails deleting the older logfiles that were rotated. If Prune is selected, the Files to Keep field is activated and the Archive Directory is grayed out. In the Files to Keep field, you would specify the number of logfiles to be deleted or pruned. We selected 2 as the number of files to keep.

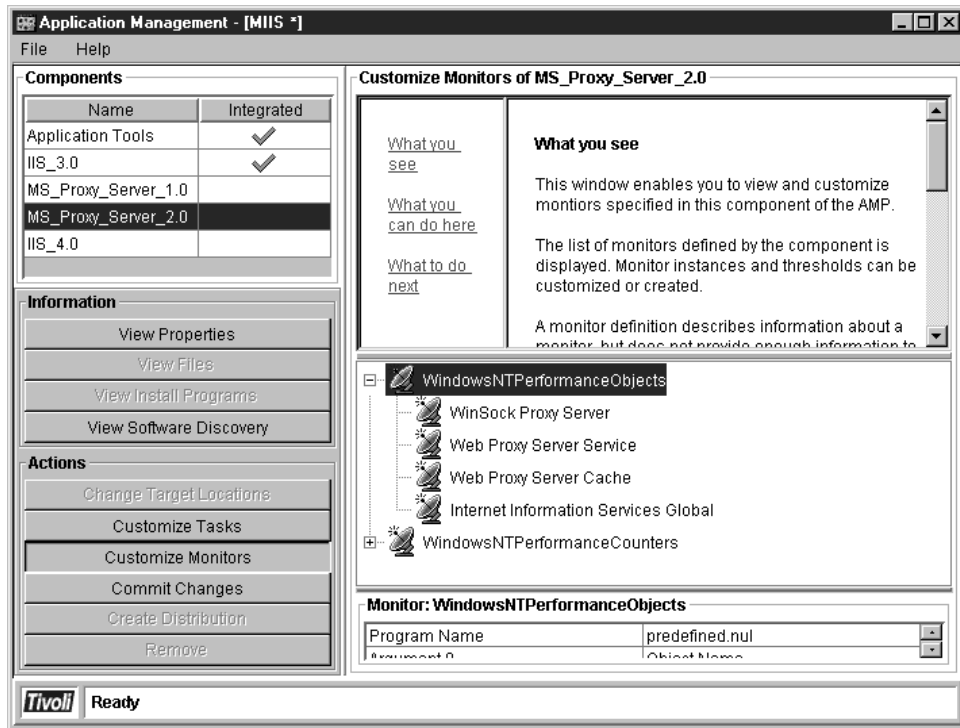


Figure 165. The Windows NT Performance Objects for Proxy 2.0

The monitors for Proxy Server V2.0 can't be customized. If you refer to Figure 167 on page 122 you can see that right clicking on the **Winsock Proxy Server**, the options are grayed out.

Figure 165 shows the NT Performance objects that will be added to the software distribution package, thus enabling your Proxy server to be managed from within Tivoli IT Director. The objects are:

- WinSock Proxy Server
- Web Proxy Server Service
- Web Proxy Server Cache
- Internet Information Services Global

Once the monitors have been committed and the software distribution has taken place to your Proxy servers, you will be able to access the same performance counters via Tivoli IT Director, as those that are available in the NT performance monitor. Figure 166 on page 121 shows you how the monitors will look from the resource monitoring function of Tivoli IT Director.

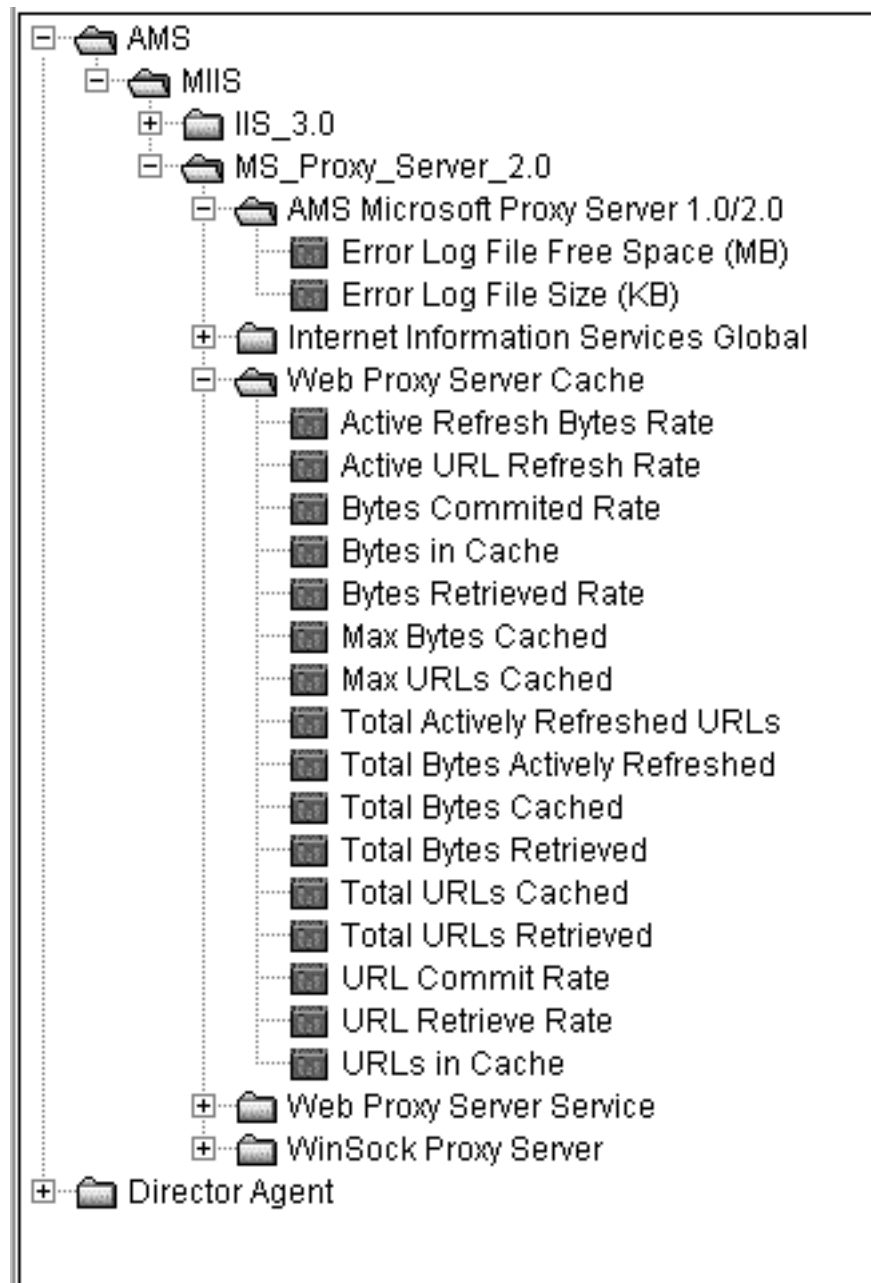


Figure 166. The Proxy Resource Monitors View in Tivoli IT Director

If you refer to Figure 167 on page 122, you can see that we right clicked on the **Winsock Proxy Server** monitor. The options are grayed out, meaning that there are no configurable options.

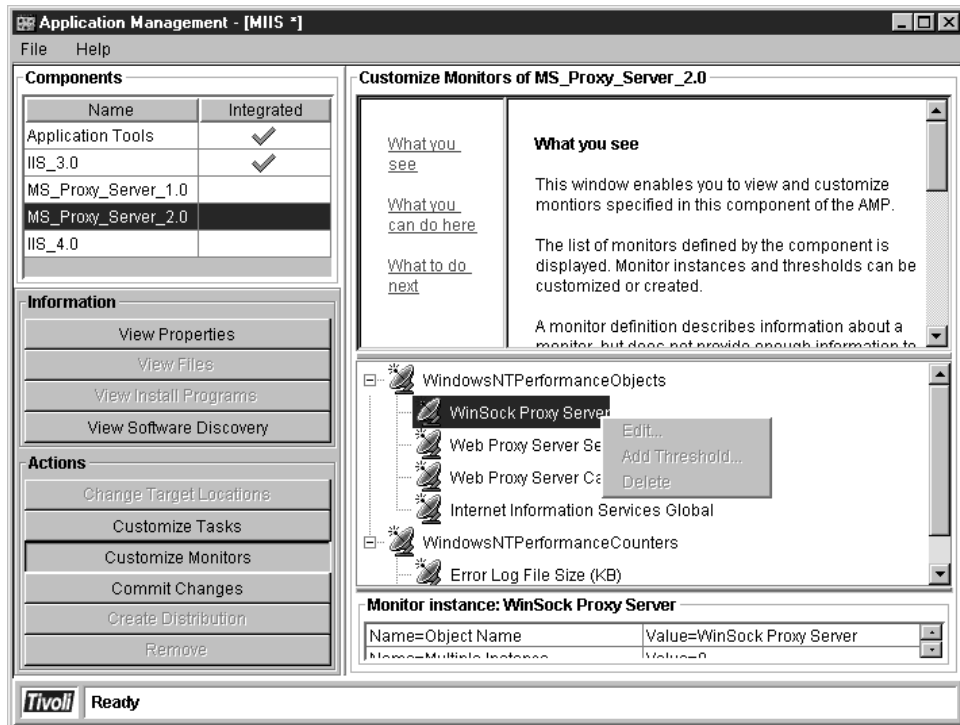


Figure 167. The Monitors are Not Configurable

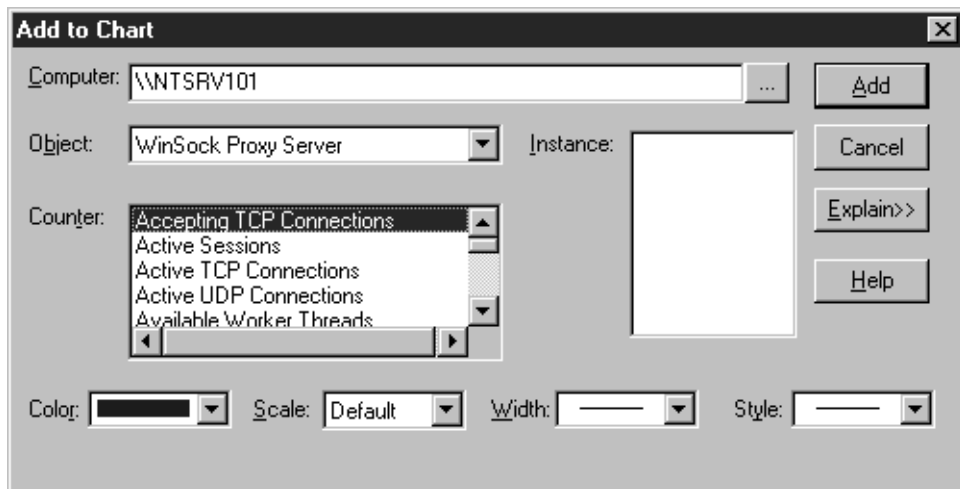


Figure 168. The Proxy Counters in NT Performance Monitor

The Windows NT performance monitor shown in Figure 168 has counters for Winsock Proxy Server. These counters are added to the performance monitor when the Proxy server is installed. Tivoli IT Director's application management capability uses these counters in the MIIS AMP.



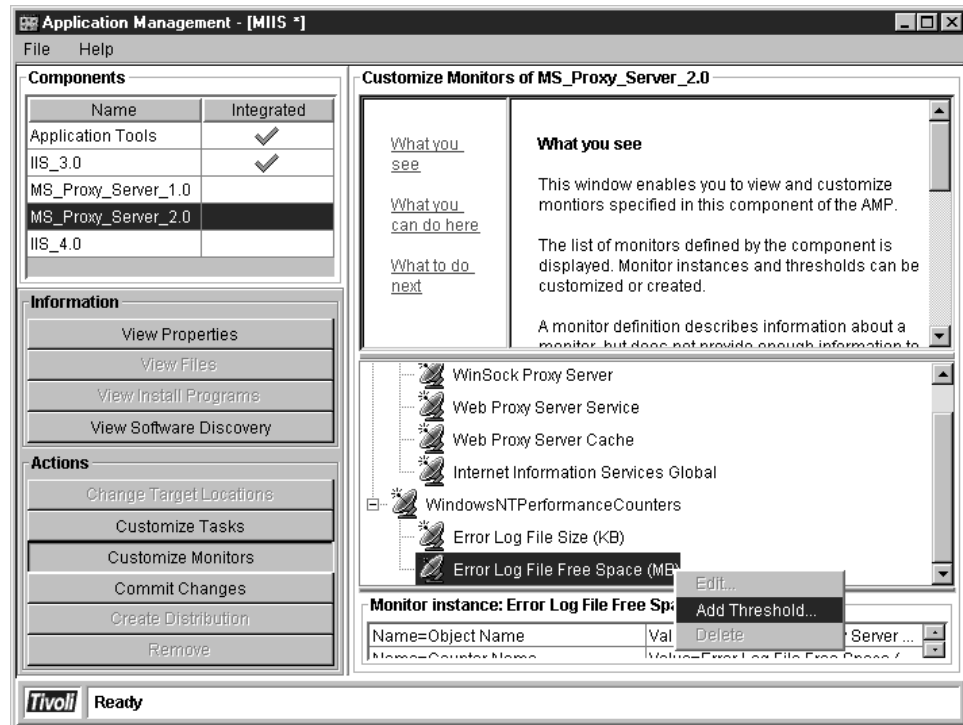


Figure 169. Adding a Threshold for the Error log File Free Space

There are thresholds that you can add to monitor the size of the error log file. Right click on **Error Log File Free Space** and select **Add Threshold**. Once you have selected to add a threshold you will be presented with the choices shown in Figure 170 and Figure 171 on page 124.

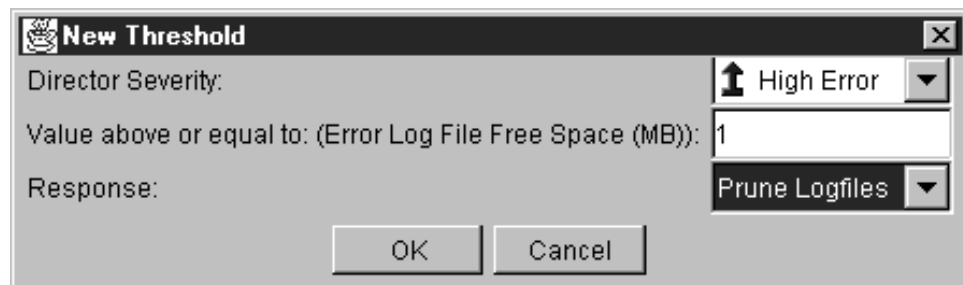


Figure 170. Setting Values for the Log Free Space Threshold

For the threshold of the log file free space, you can add the director severity and a response. The prune logfiles response shown in the following window is the task that you created in Figure 164 on page 119.

**Note:** The above or equal to size must be specified in megabytes.

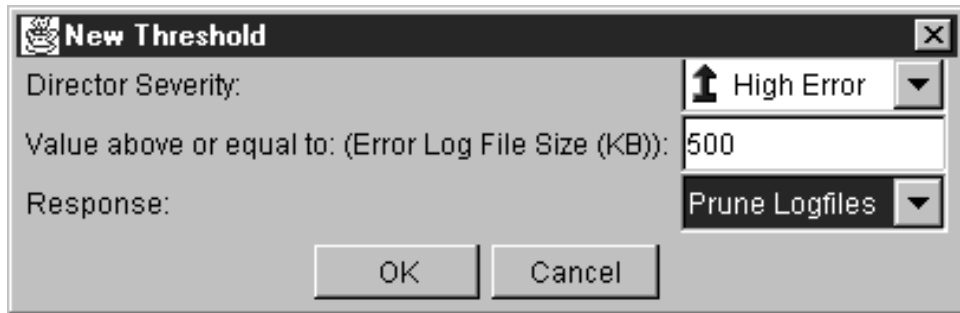


Figure 171. Setting Values for the Log Size Threshold

Creating a threshold for log file size itself is the same as for the free space threshold.

**Note:** The size of the logfile is specified in KBs.

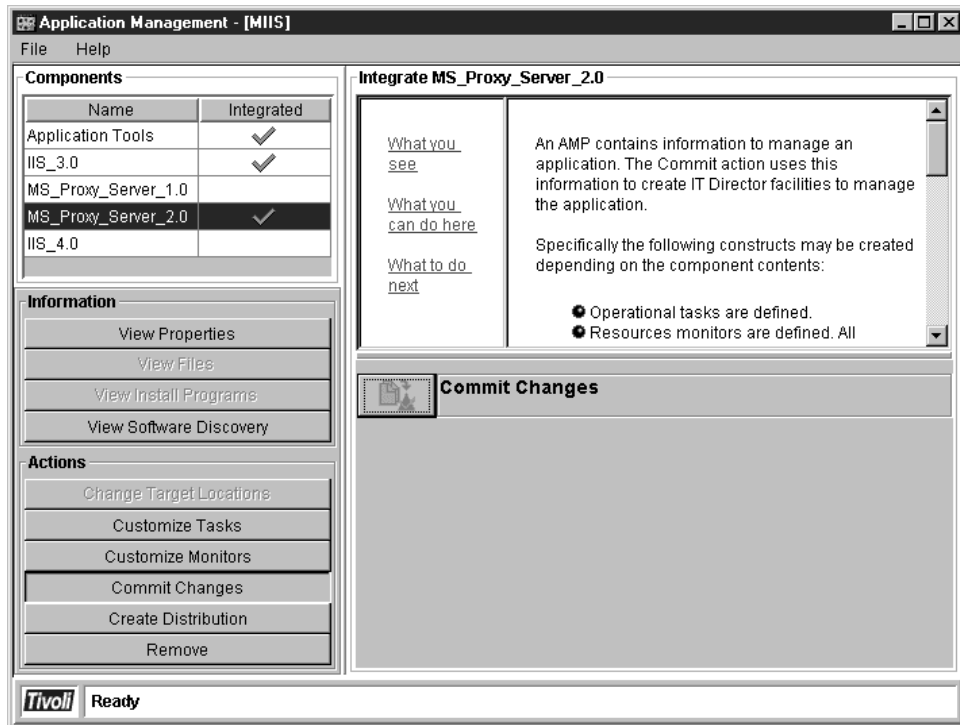


Figure 172. Commit the Changes that you Have Made

Once you have created the tasks and thresholds that you require, you can go ahead and commit the changes. Remember that at this time it is not critical that you specify each and every task, monitor and threshold that you think you possible could have. You can always add to the existing configuration, or dynamically set up tasks from the Tivoli IT Director management console (see Figure 185 on page 130).

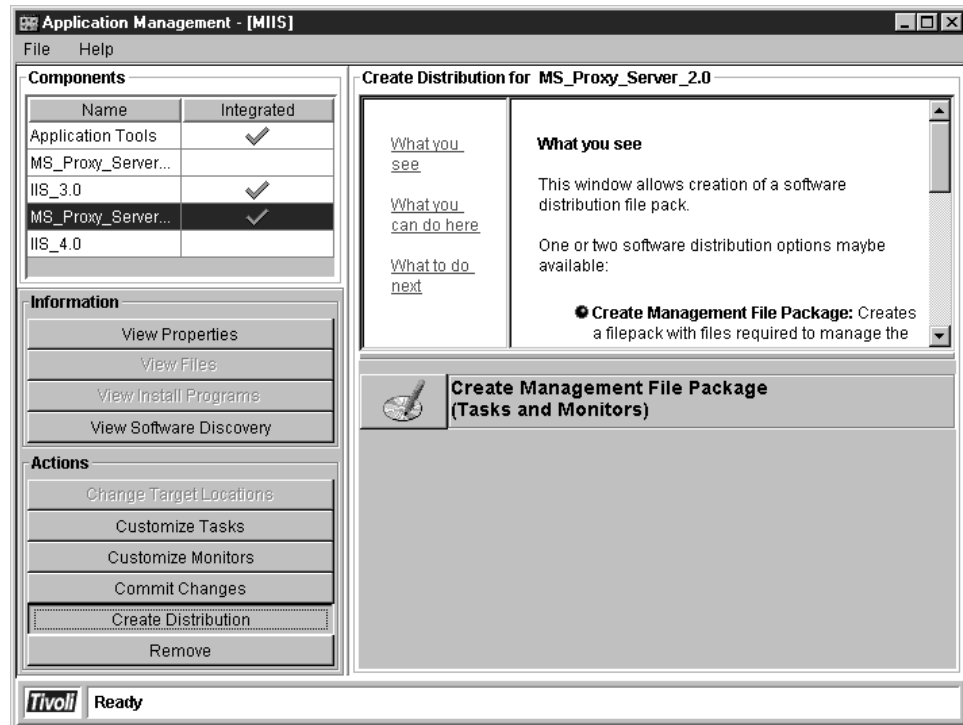


Figure 173. Create the Management File Package

Now that you have committed the changes, you need to create the software distribution package that will be distributed to the proxy server allowing it to be managed. Click on the **Create Management File Package** button to create the package for distribution.

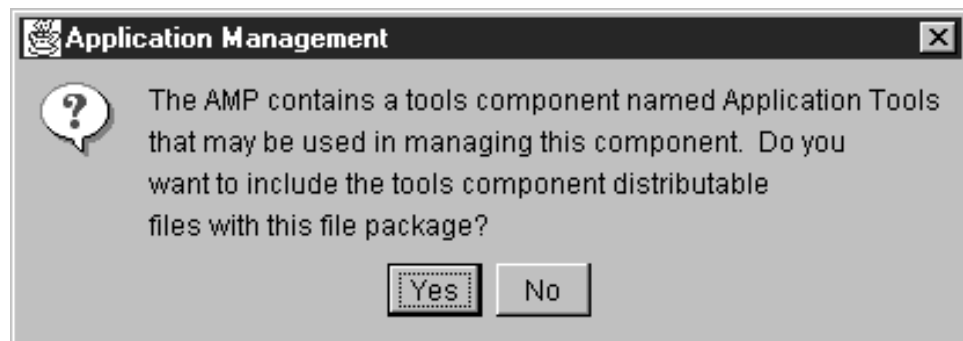


Figure 174. Including the Application Tools

You will be asked whether or not you wish to include the application tools in the file package. The Application Tools create the environment for the tasks of the AMP to run in. If you do not select to install the Application Tools, the tasks that you have created may not run correctly. We suggest that you include them whenever you are given the choice.

Click on **Yes** to include the Application Tools and to create the software distribution package.

Once the file distribution package is created, two additional files are added to the \TivoliWg\SwDistPk\ directory. These two files, named q6i3i0.blk and q6i3i0.fp, are added to the directory. Note that the file names may change according to the

version of Tivoli IT Director and the AMP and are shown here purely for interest's sake. For more information see 1.5, "What is a Management File Package" on page 4.

#### 4.4.1 Working with the Proxy AMP

Before you can use the AMP to manage your Proxy server, you need to distribute the file package to the Proxy server, thus allowing the server to be managed. The Proxy server must be a Tivoli IT Director agent before you can distribute the software.

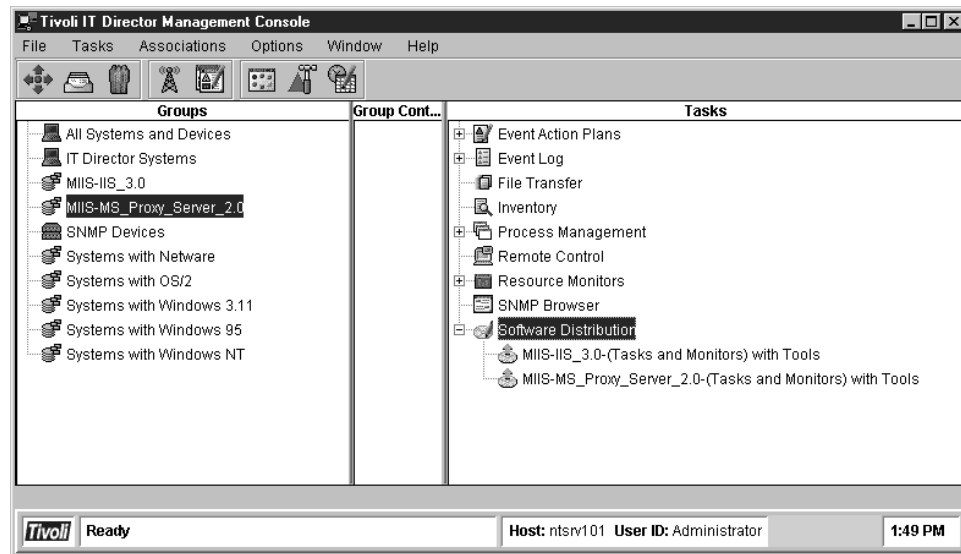


Figure 175. Proxy Server is Added as a Group and a Task

If you look at the Tivoli IT Director console in Figure 175 you can see that the MIIS-MS\_Proxy\_Server\_2.0 was added to the list of groups on the left pane in the window. Also, under Software Distribution on the right side of the window, you can see that the software package, MIIS-Proxy, is ready to be distributed to the Proxy server.

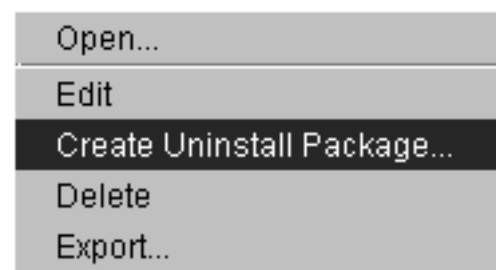


Figure 176. You Can't Create an Uninstall Package

If you right click on the management file package you will be presented with the menu shown in Figure 176. Although these options are available to be selected, the management file package is *Read Only* and can't be edited. If you select **Create Uninstall Package**, for example, you will receive the error message shown in Figure 177 on page 127.



Figure 177. You Can't Directly Edit the Management File Package

Drag the MIIS Proxy server file package and drop it onto your Proxy server's icon in the Group Contents pane of the Tivoli IT Director console.

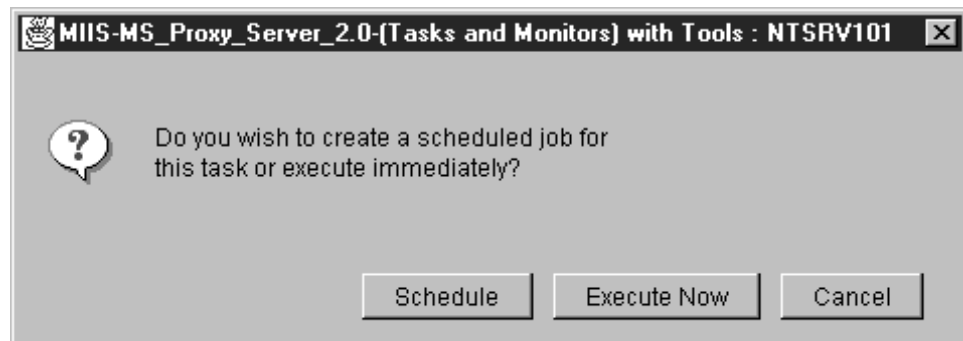


Figure 178. File Distribution Time Confirmation

You can now decide if you want the software distribution to happen to the server immediately or you can schedule it for another time. We decided to run it right away so we clicked on **Execute Now**.

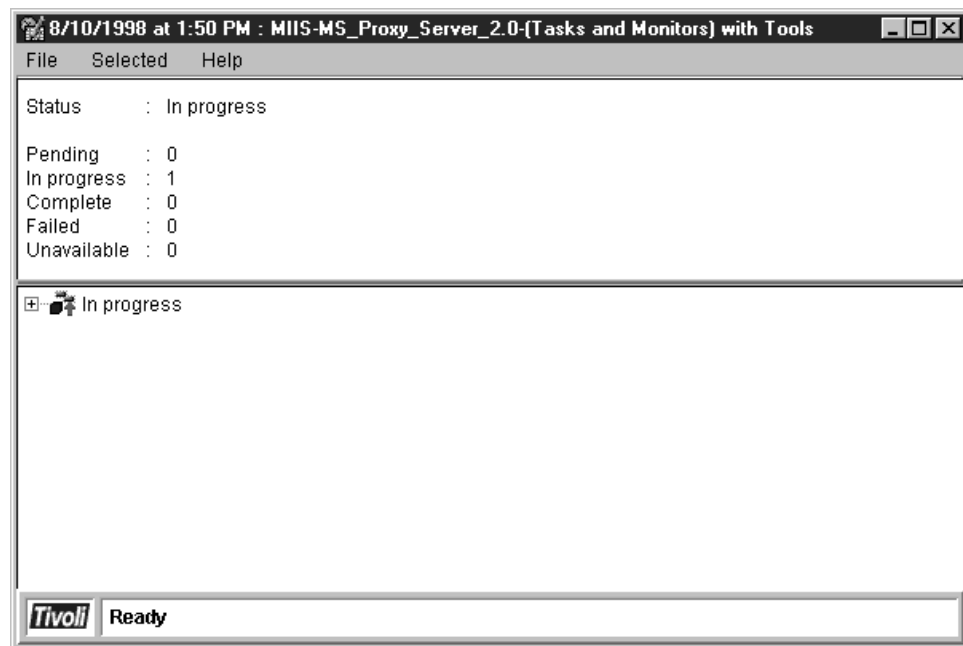


Figure 179. The Management File Package is Distributed to the Server

The management file package gets distributed to the proxy server right away as shown in Figure 179.

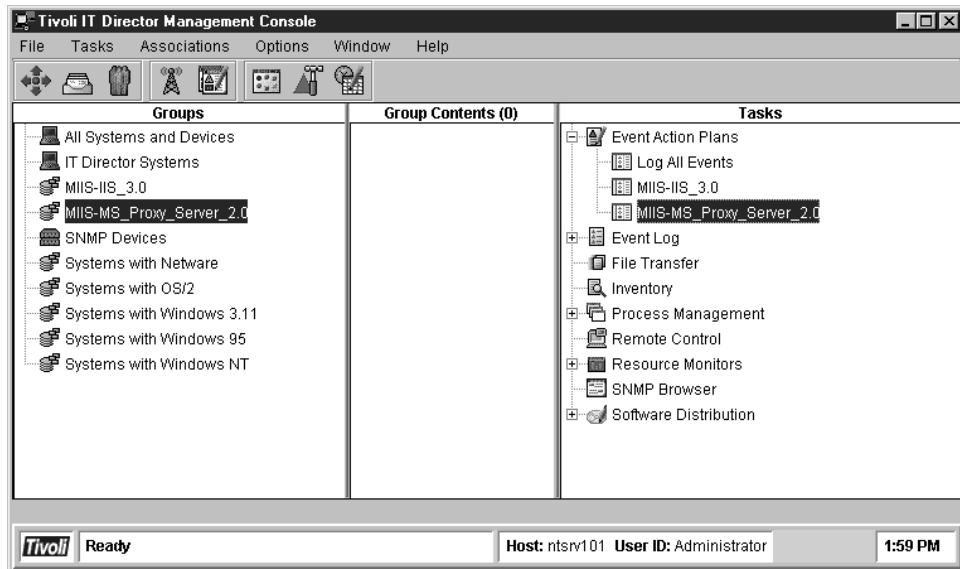


Figure 180. Proxy Server is Added as an Event Action Plan

If you expand the Event Action Plans in the tasks pane in the management console, you will see that MIIS-MS\_Proxy\_Server\_2.0 has been added to the Event Action Plans group.

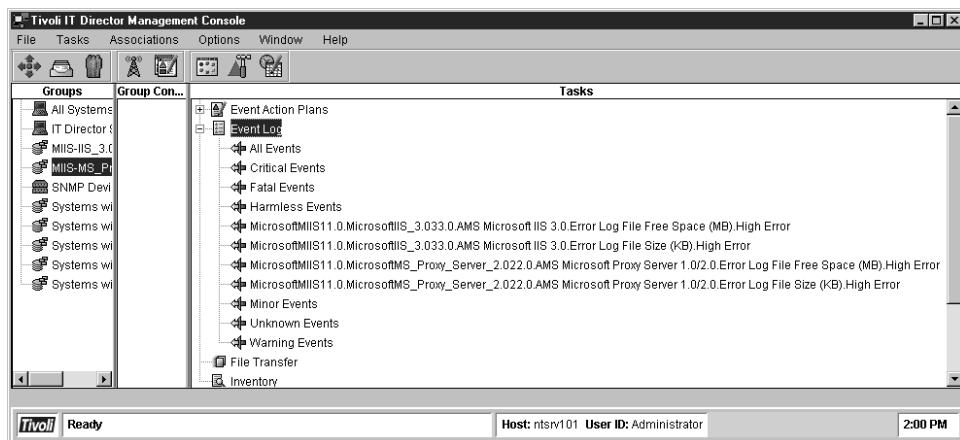


Figure 181. Proxy Server is Added to the Event Log Tasks

Similarly, the Proxy server monitors are added to the Event Log group in the Tasks pane.

You can now begin the monitoring process for your IIS servers by dragging the MIIS event action plan onto the servers you wish to monitor (see Figure 182 on page 129). The event action plan is added to the system. This means that you can set up actions that you would like to happen should there be an error on your IIS/Proxy server. You could, for example, configure your pager to go off when a threshold is met, or the console ticker tape can alert you of a problem.

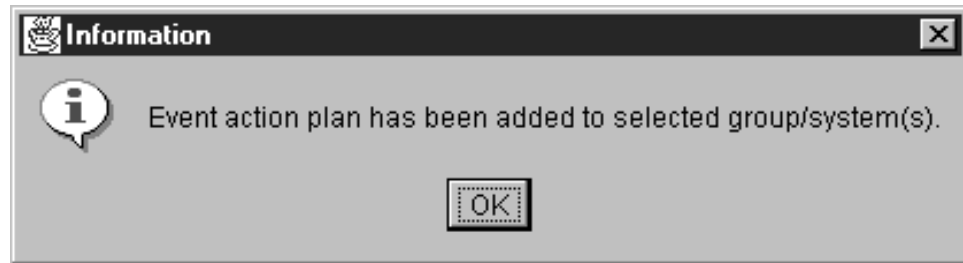


Figure 182. Distributing the Event Action Plan to the Server

To monitor the performance of your IIS or Proxy server you can launch the resource monitor. After right clicking on the managed server's icon on the console, select the **Resource Monitors**.



Figure 183. Monitoring the Resources on the Proxy Server

Expand the folder on the left pane of the window, as shown in Figure 184 on page 130, and select the resources you wish to monitor. Click on the monitor in question and drag it onto the right pane of the window.

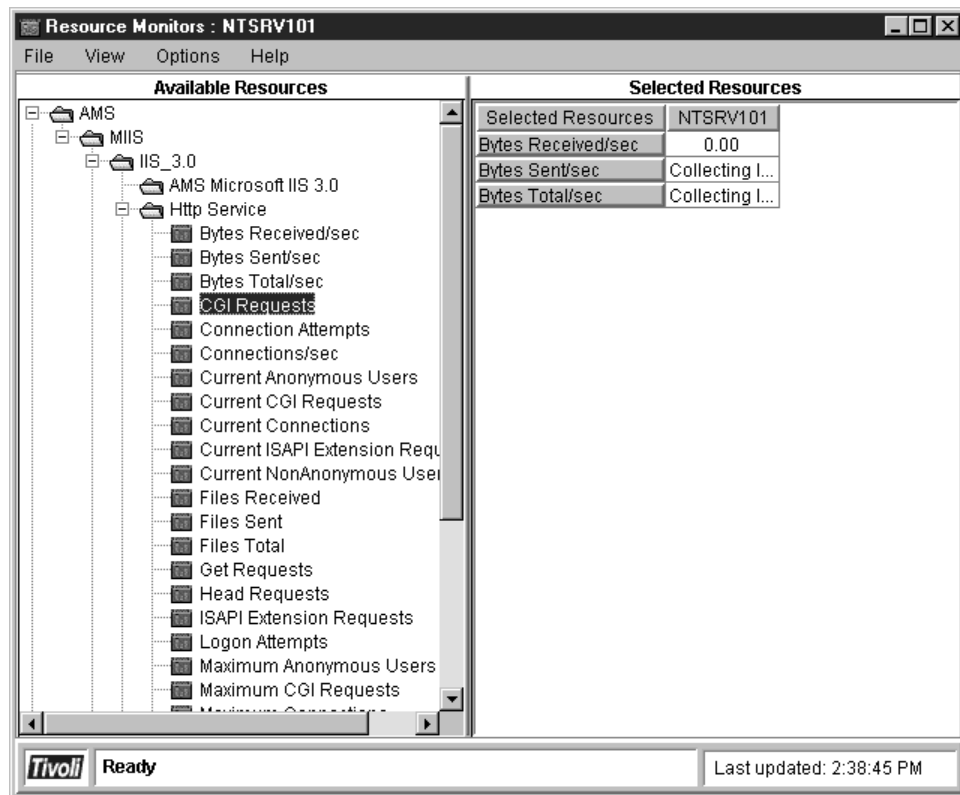


Figure 184. Adding Resources to be Monitored

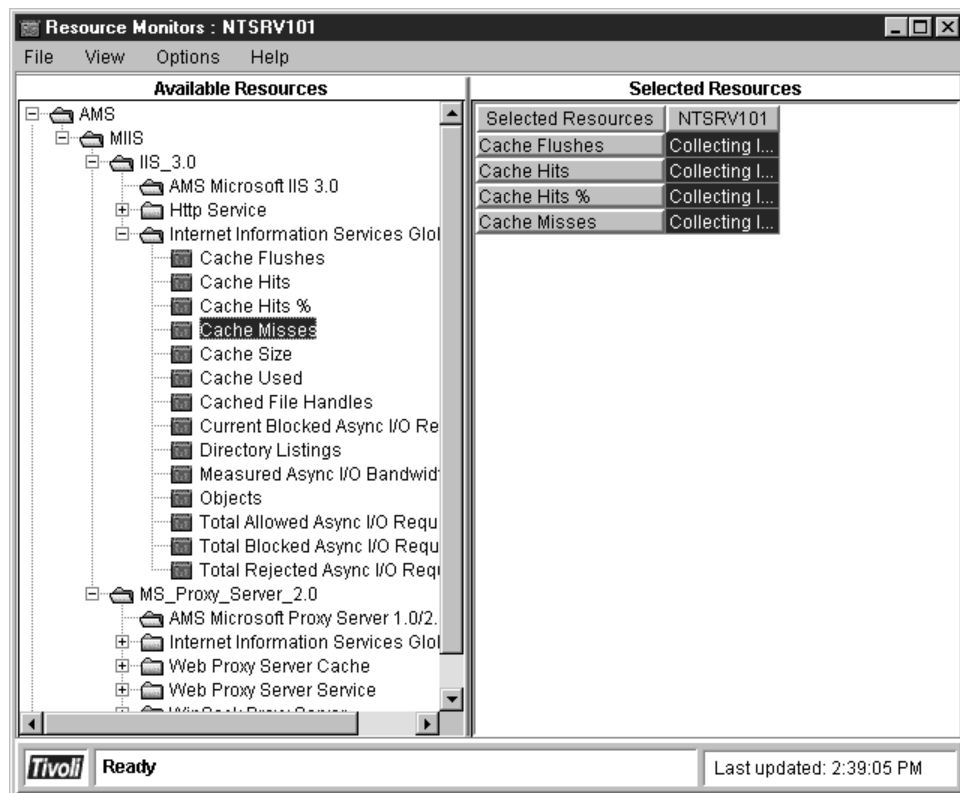


Figure 185. The Information is Collected



The statistics you requested are immediately collected and displayed in the right pane of the window. You can further increase your control of the resources being monitored by adding individual thresholds to the resources. For more in-depth information on how to set up individual thresholds refer to 2.4, “Using the Event Action Plan” on page 47.

## 4.5 IIS 4.0

The customization of the IIS AMP for IIS V4.0 is the same as for V3.0. Following are the initial screens for its properties, module name, tasks and monitors.

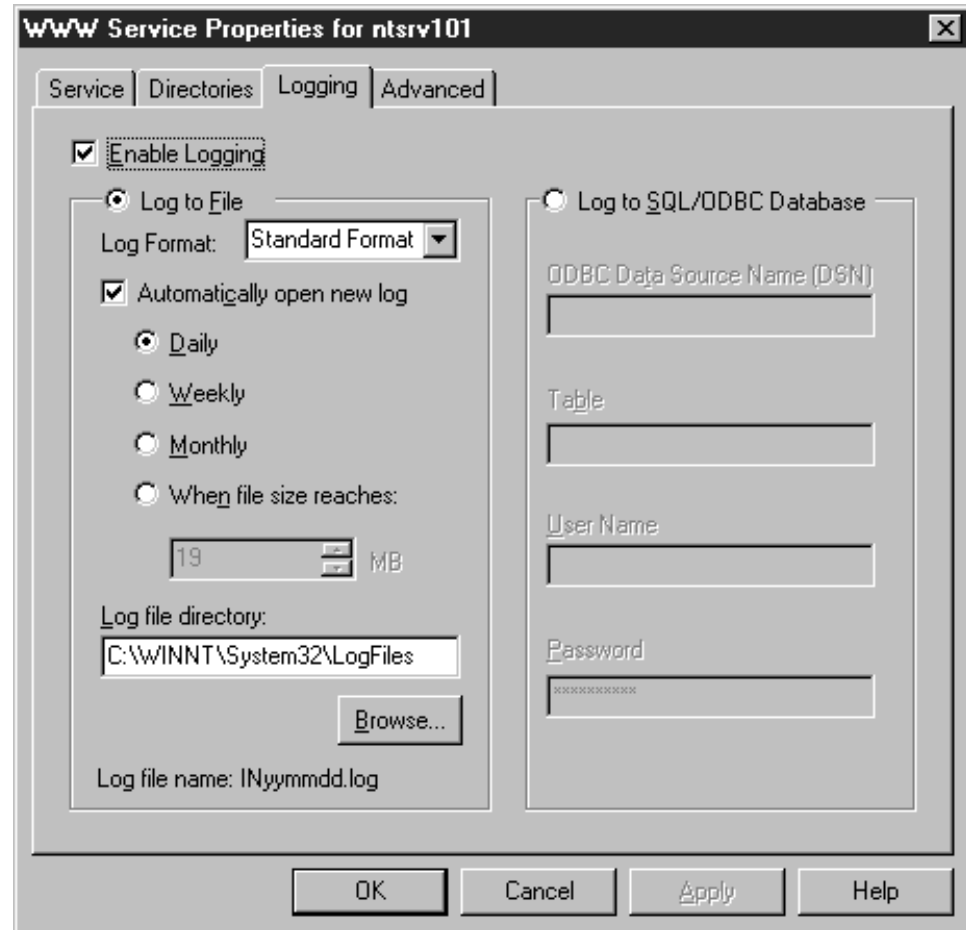


Figure 186. IIS 4.0 Properties

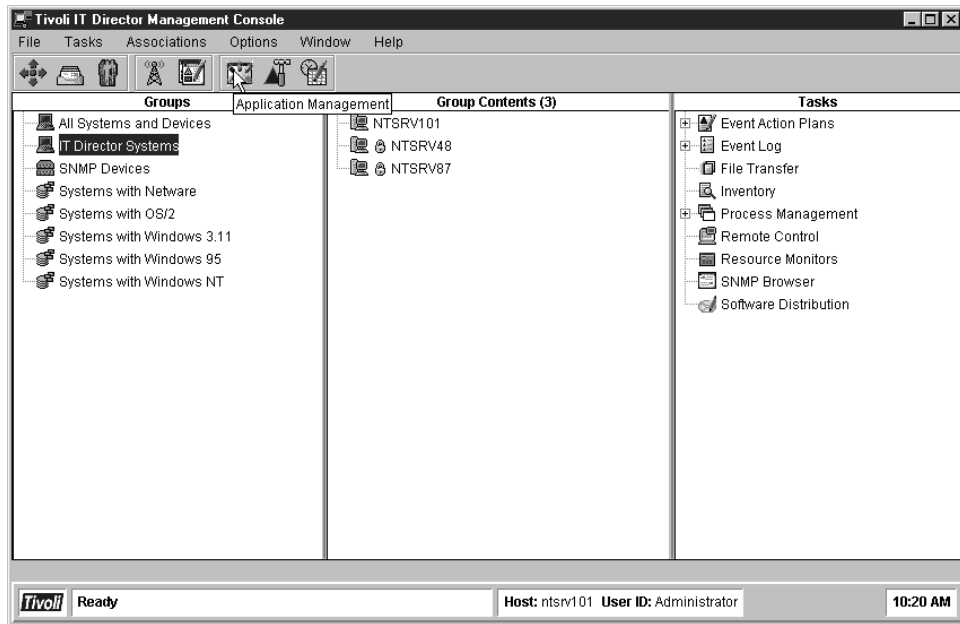


Figure 187. IIS 4.0 Software Discovery

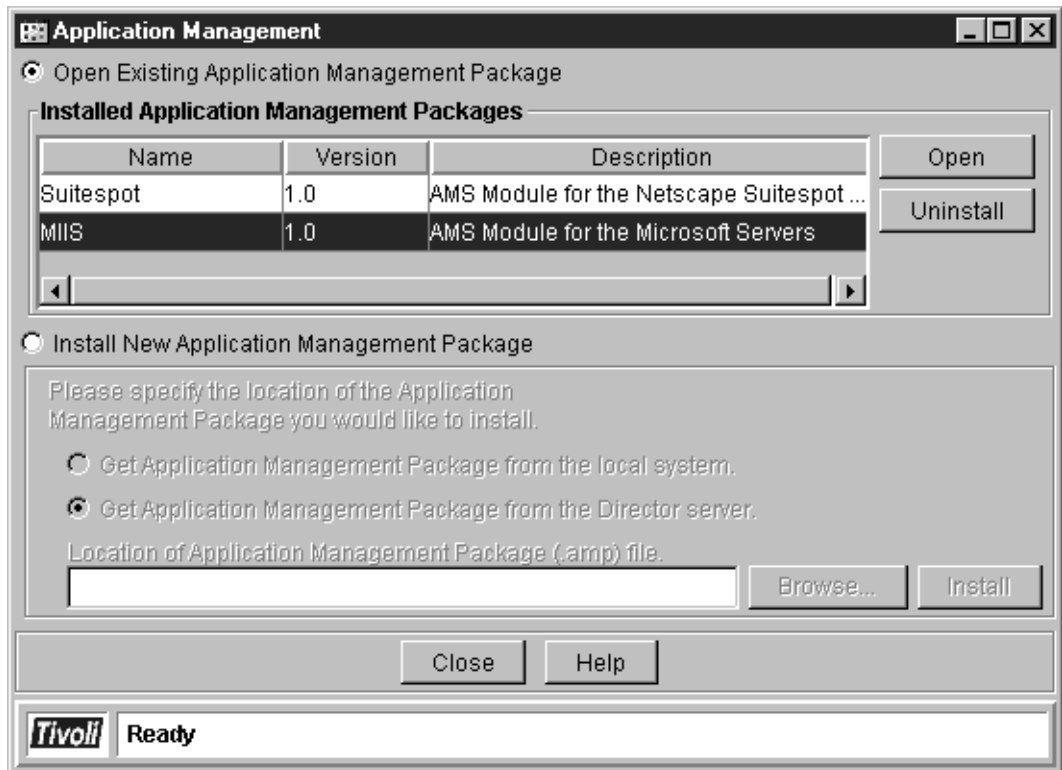


Figure 188. IIS 4.0 Tasks

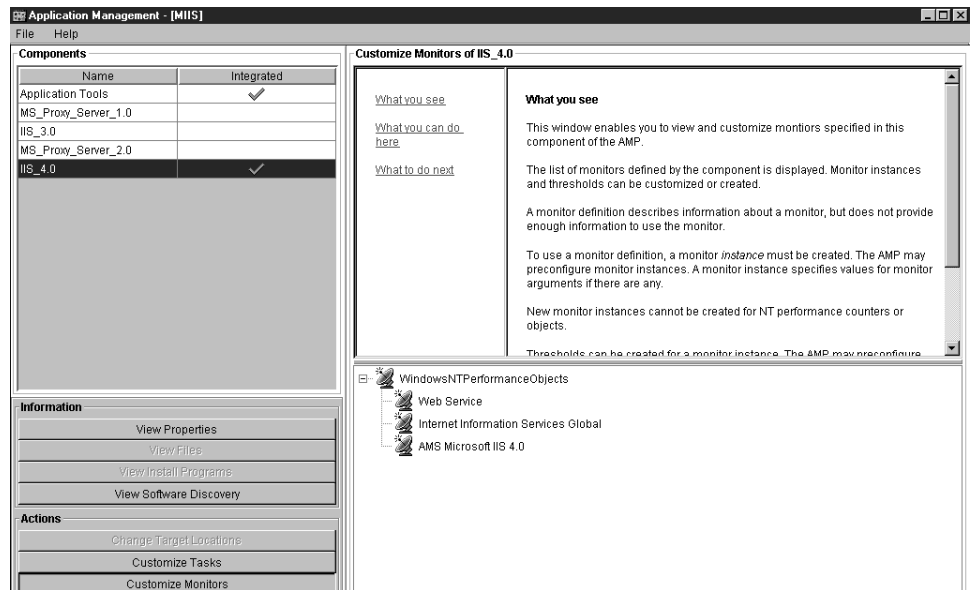


Figure 189. IIS 4.0 Monitors



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## Chapter 5. Exchange Applications Management

This chapter provides examples of the applications management functions that are implemented in Tivoli IT Director for Microsoft Exchange. For this project we worked with Microsoft Exchange V5.5 and we installed service pack 1 on top of that. We assume that the reader is familiar with general mail system concepts and terminology. We explain some concepts and terminology specific to Microsoft Exchange so that the reader can easily review Microsoft Exchange details.

---

### 5.1 Some Facts About Microsoft Exchange

Some MS Exchange keywords that are useful to know:

- **Directory** - A key element of the Exchange architecture is the directory. It maintains all of the information about the organization's users and resources. Some of the things it supports are mailboxes, custom recipients, private and public folders, servers, distribution lists and connectors. Microsoft Exchange uses objects to describe the structure of the organization. All items in the Exchange hierarchy are considered objects. This includes recipients, distribution lists, servers and the messaging infrastructure itself.
- **Message Transfer Agent** - The message transfer agent (MTA) is a component of an electronic mail system that handles the routing, conversion, address mapping and message transfer between systems.
- **Information Store (IS)** - The Microsoft information store connects the server and the client. The information store is responsible for delivering mail to users on the same server as the sender and forwarding mail to the MTA for delivery to users who are not on the same server.
- **System Attendant** - The system attendant is responsible for the maintenance of the MS Exchange Server. It performs updates, reclaims wasted space in the database and monitors the consistency of the database. It can also monitor the state of the messaging connections between servers if you want it to. You can make the system attendant update the site routing table and generate foreign e-mail addresses.
- **Directory Synchronization** - With a previous mail system, MSMail, you needed to synchronize all the post offices to maintain a current global address list. To do this you had to use a scheduled process called DirSync. In case you have MSMail Servers in your network there is an optional Exchange service installed as an NT Server service on your Exchange Server called *Directory Synchronization*.
- **Connectors** - Another word for connector is gateway. A connector or a gateway handles the mail format translation between Exchange and other mail systems. This can be another mail system within your LAN or a different mail system that you can reach by using a Simple Mail Transfer Protocol (SMTP) gateway, connecting the users to the Internet. An example of this would be Lotus Notes.

Following is a list of some of the most important and time-consuming maintenance-related tasks one has to do on a Microsoft Exchange system.

- Ensuring disk space availability - see 5.2.3, "Customize Monitors" on page 176.

- Ensuring continuous connection to foreign systems - see 5.2.3, “Customize Monitors” on page 176.
- Monitoring system events - see 5.2.3, “Customize Monitors” on page 176.
- Running consistency checks on the data stores - see 5.2.1, “Customize Tasks” on page 143.
- Managing public folders.
- Running the Key Management server.
- Managing address spaces and user mailboxes.

In this chapter we show you a few examples of how these tasks can be simplified and automated using Tivoli IT Director.

## 5.2 Importing and Customizing Exchange Server AMP

In order to be able to use a new AMP you need to import it into Tivoli IT Director. The only AMPs that are automatically imported at install time are the Microsoft IIS and Netscape AMPs.

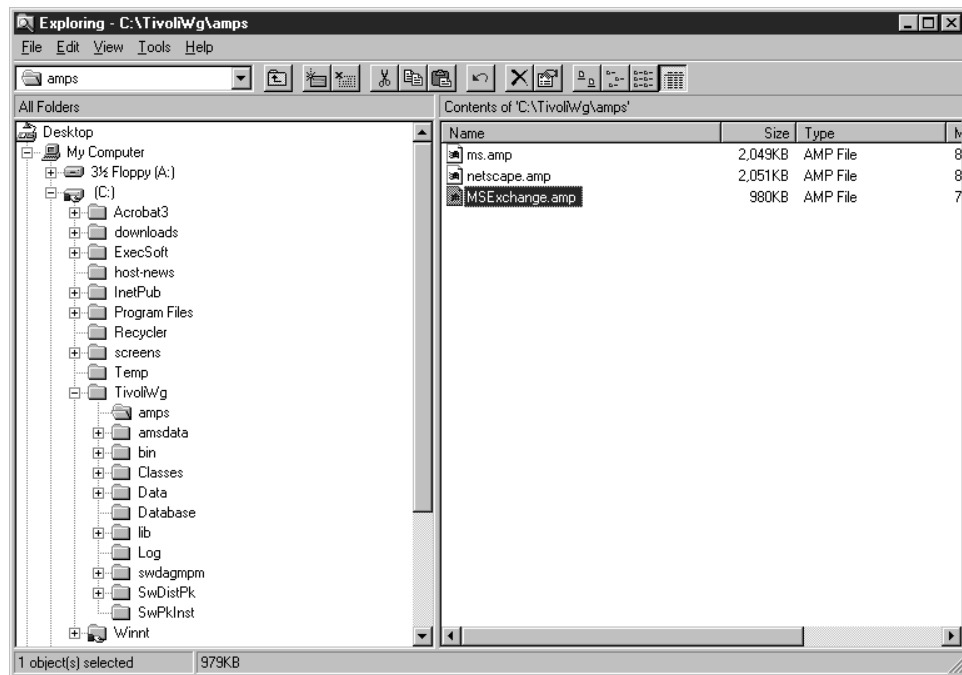


Figure 190. Where to Put the New AMP

In Figure 190 you can see where we put the *MSEExchange* AMP. It is possible to put the file anywhere in your directory structure but we recommend that you put it in the location shown in Figure 190.

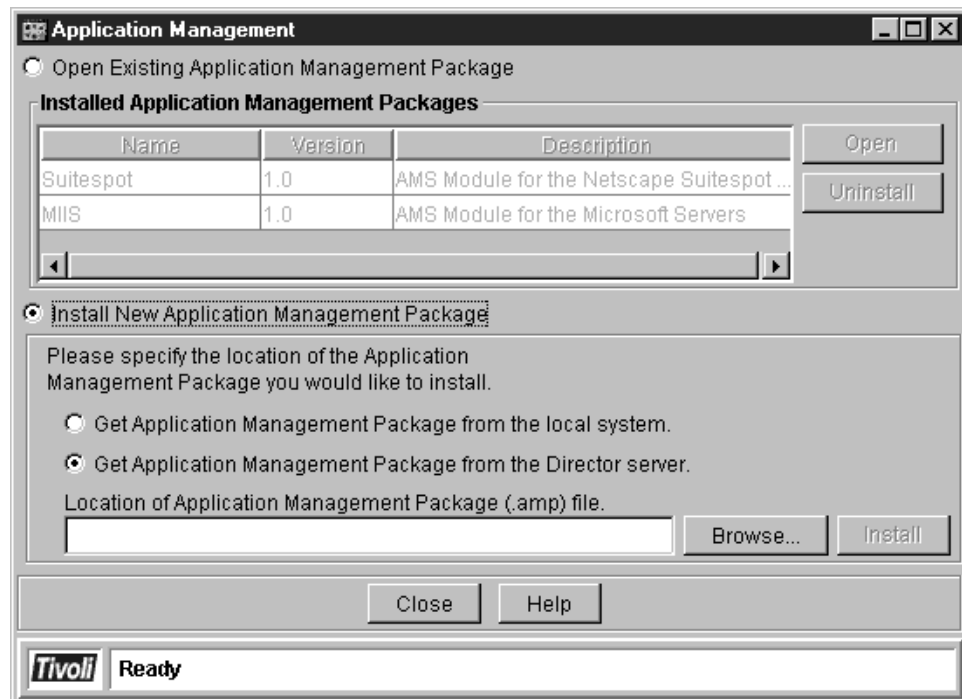


Figure 191. Install New Application Management Package

Select **Tasks** and then **Application Management** from the Tivoli IT Director console or click on the icon for applications management on the console. That will bring you the information shown in Figure 191. Click on **Install New Application Management Package**.

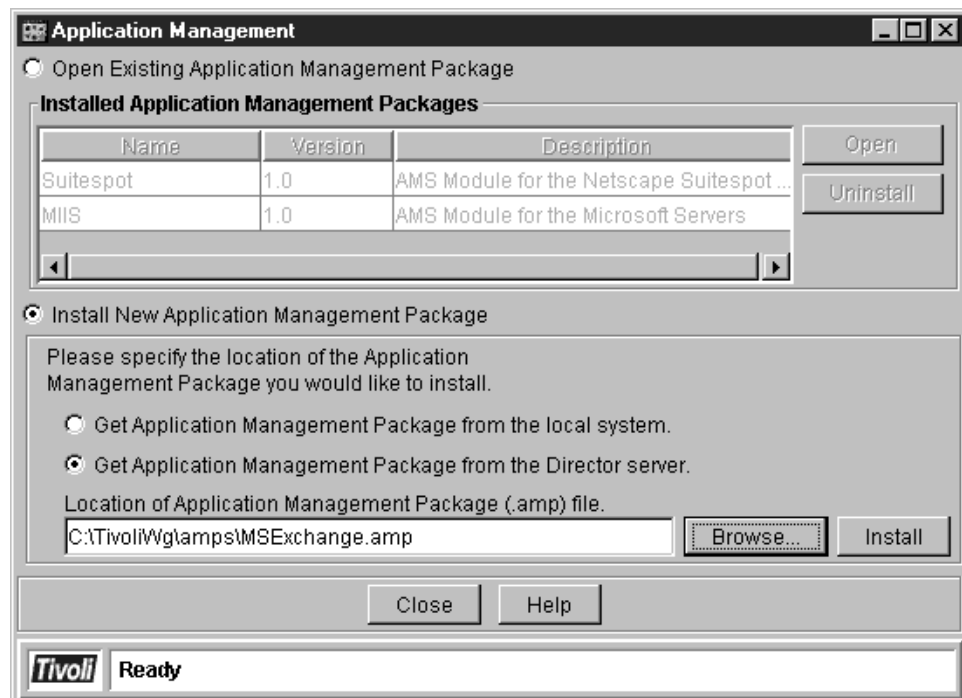


Figure 192. Location of Application Management Package

You can now type the path to where you have copied the AMP or you can locate it by clicking on the **Browse** button. Once you have identified the directory click on the **Install** button.

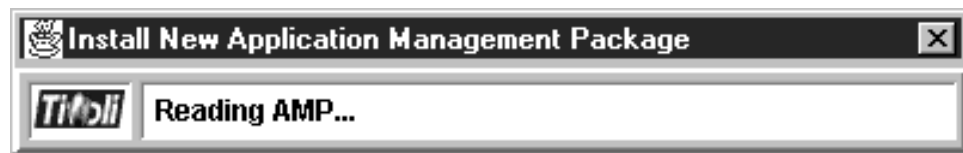


Figure 193. Installing New Application Management Package

After clicking on the Install button you will see the window shown in Figure 193.

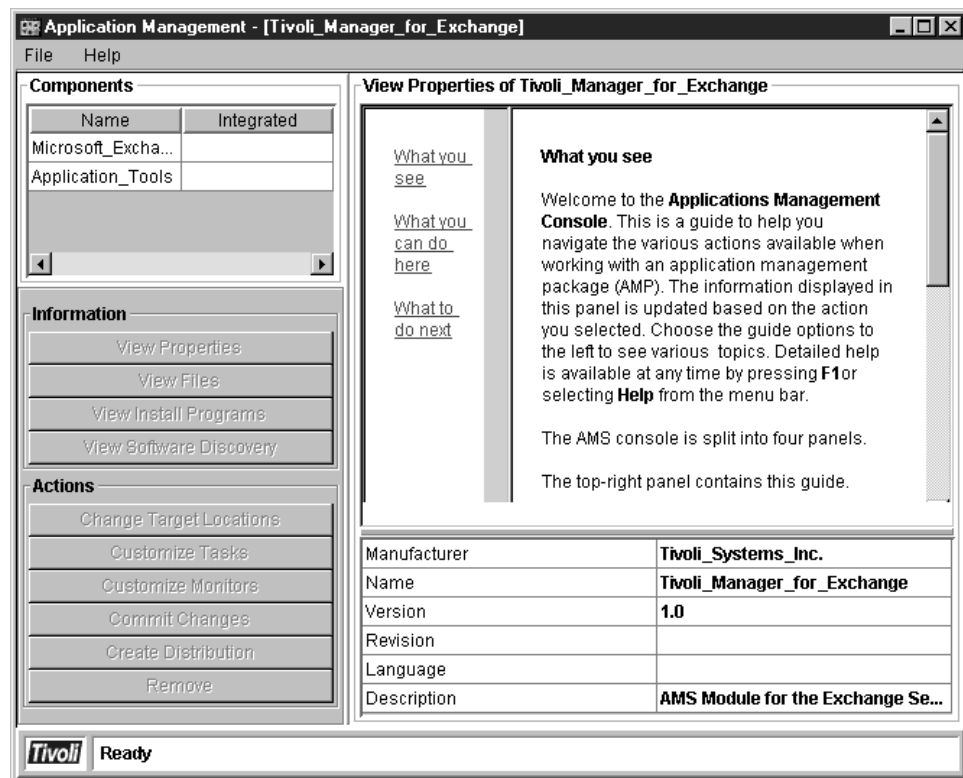


Figure 194. General Information Window

Once the AMP is read into Tivoli IT Director you can see some general information about this AMP. In the bottom right-hand corner you find the manufacturer and which version of the MS Exchange AMP you are using.

**Note:** With some of the AMP screens you may need to re-size the panes in order to read all of the information provided. This is done by dragging the corner of the pane.



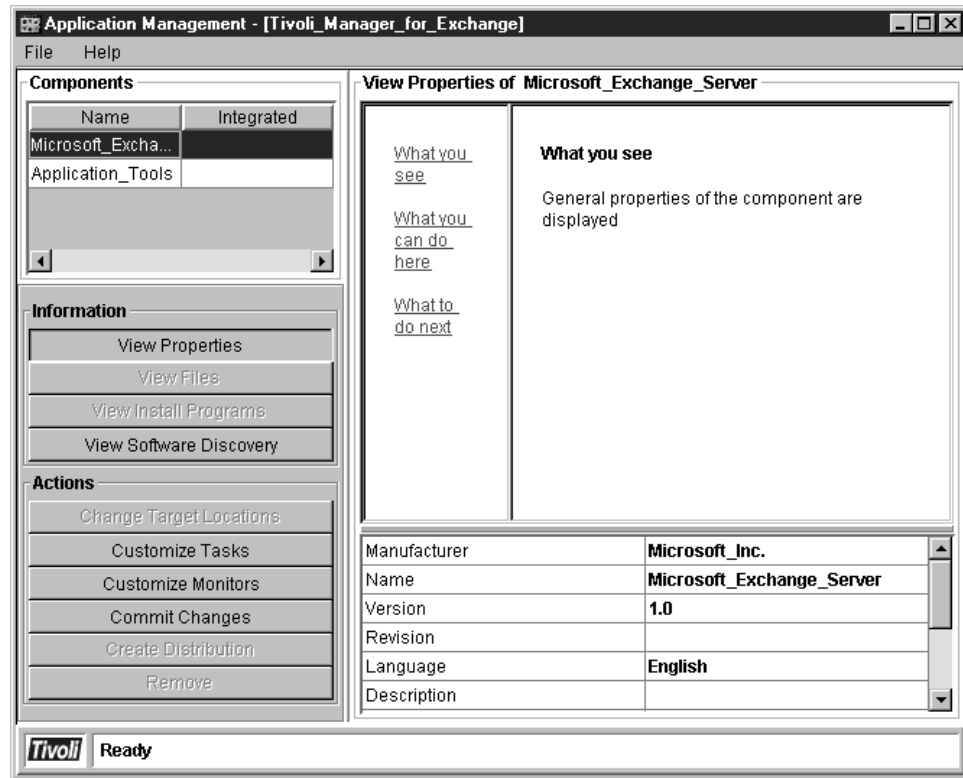


Figure 195. General Information for Microsoft Exchange Component

In Figure 195 the Microsoft Exchange Server component is selected in the top left-hand pane. In your bottom right-hand pane you see the AMP's version and the manufacturer. The Microsoft Exchange AMP also contains standard application tools, which consist of executable files that are used to gather information which will be distributed to your monitored host.

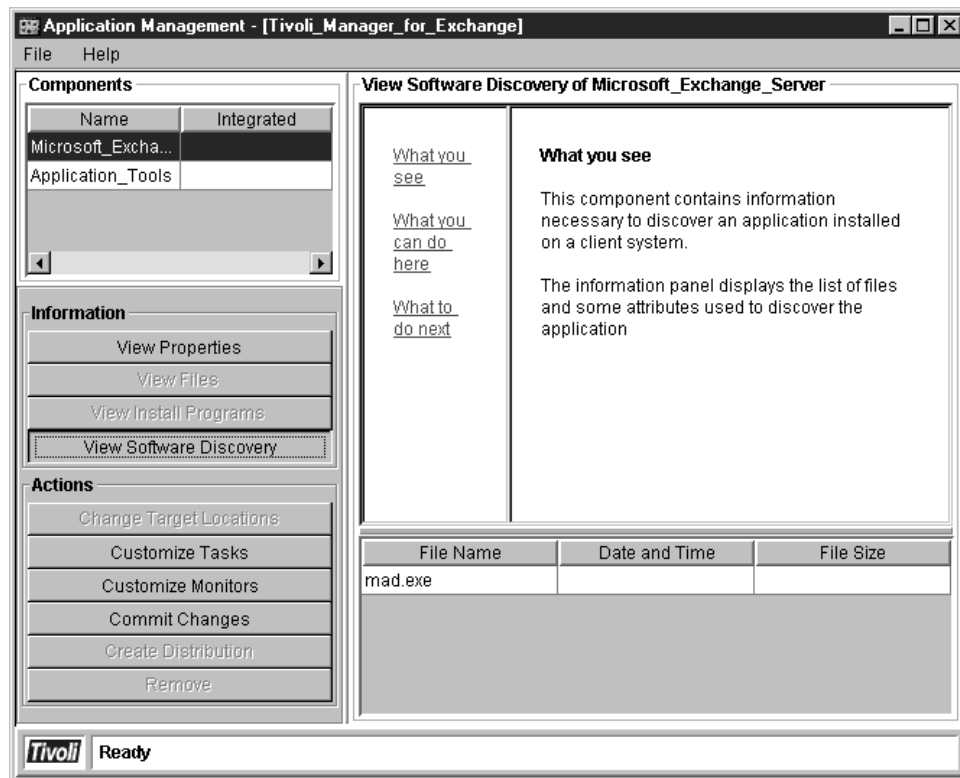


Figure 196. Application Management Window Showing Software Discovery

The name of the signature file that is required to discover this application on a client system is mad.exe as shown in Figure 196 under the File Name heading. The reason there is no information in the second and third column is that if you just specify the file name, Software Discovery will detect all versions of Microsoft Exchange since all versions of the product have a file called mad.exe.

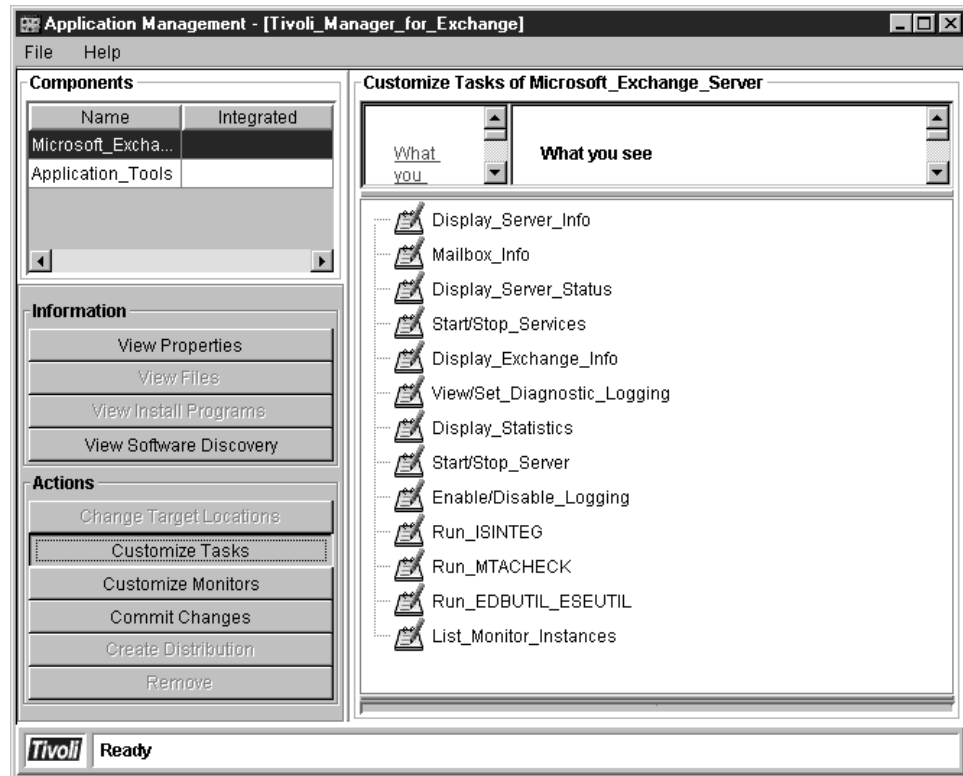


Figure 197. Customizable Tasks for MS Exchange Server

In Figure 197 you can see all the tasks that are available for the Microsoft Exchange AMP. We show the tasks dialog and after that a few working examples of how to implement some typical tasks in 5.2.1, “Customize Tasks” on page 143.

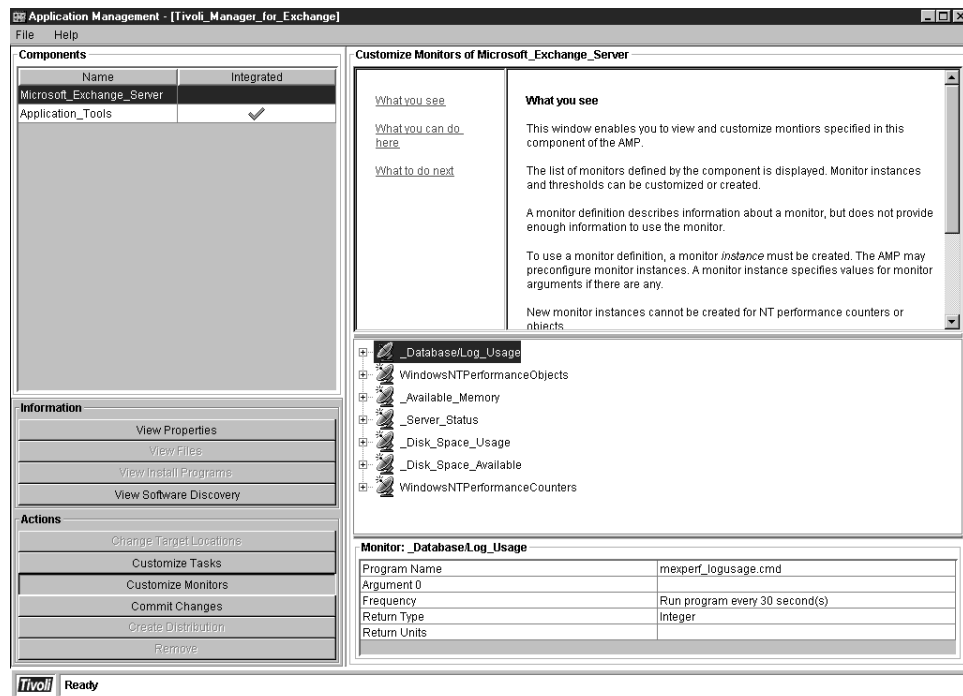


Figure 198. Customizable Monitors for MS Exchange Server

Figure 198 shows you the available groups of monitors that are configurable for the Microsoft Exchange AMP. For example, if you right click on the monitor **Server Status** you can add a threshold, as the following window shows.

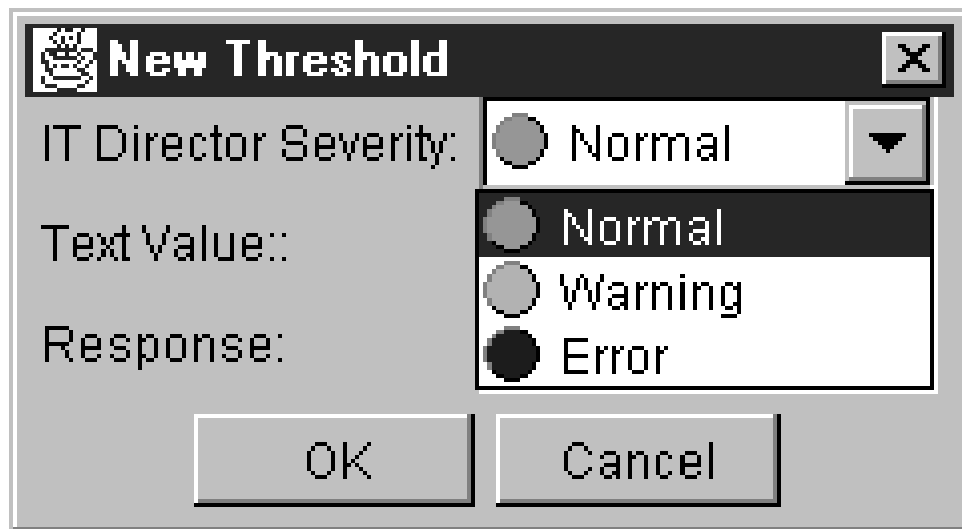


Figure 199. Add a Threshold

To read more about the monitors in the Microsoft Exchange AMP go to 5.2.3, “Customize Monitors” on page 176.

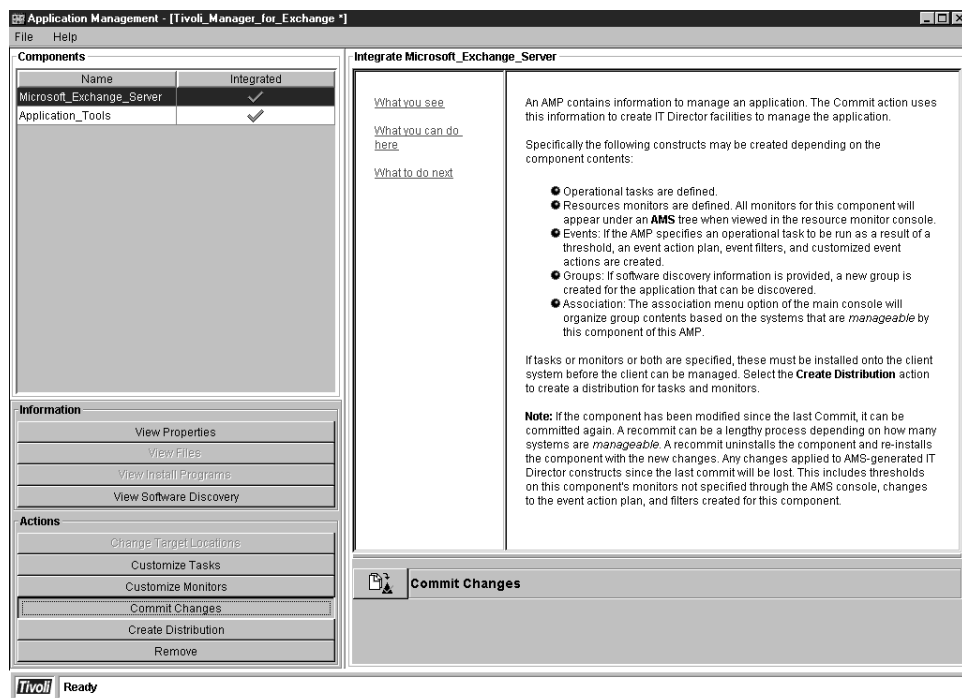


Figure 200. Commit Changes

After you have made any changes or added any thresholds, clicking on **Commit Changes** saves all your modifications and customization for the AMP you were working with. The software inventory database will be updated with the signature file for this AMP which is the file mad.exe for Microsoft Exchange. For an example see Figure 248 on page 174.

The default tasks and the one we created are added to the Director Server task database. A new group is created in your Tivoli IT Director console called `Tivoli_Manager_for_Exchange-Microsoft_Exchange_Server`. In this group all systems with the manageable software for Microsoft Exchange will be added. To see what the console looks like after you have clicked on Commit Changes see the right pane in Figure 246 on page 173.

## 5.2.1 Customize Tasks

The customization of tasks with Tivoli IT Director is probably the most important part when you implement the Microsoft Exchange AMP. For you to have good automatic responses when warnings and errors occur, you have to have configured your tasks to handle many different situations. The following section will provide you with a few examples and recommendations on how to set up some useful tasks.



Figure 201. Customize Tasks

In Figure 201 we selected the **Customize Tasks** button and then right clicked on the task instance **Display\_Server\_Info**. This instance has nothing to configure. This is logical as it is only a display task and there are no parameters. The same is also true for the two instances Mailbox\_Info and Display\_Server\_Status.

If you want to execute that task you can go to the Tivoli IT Director management console and right click on the agent in the Group Contents pane as shown in the following window.

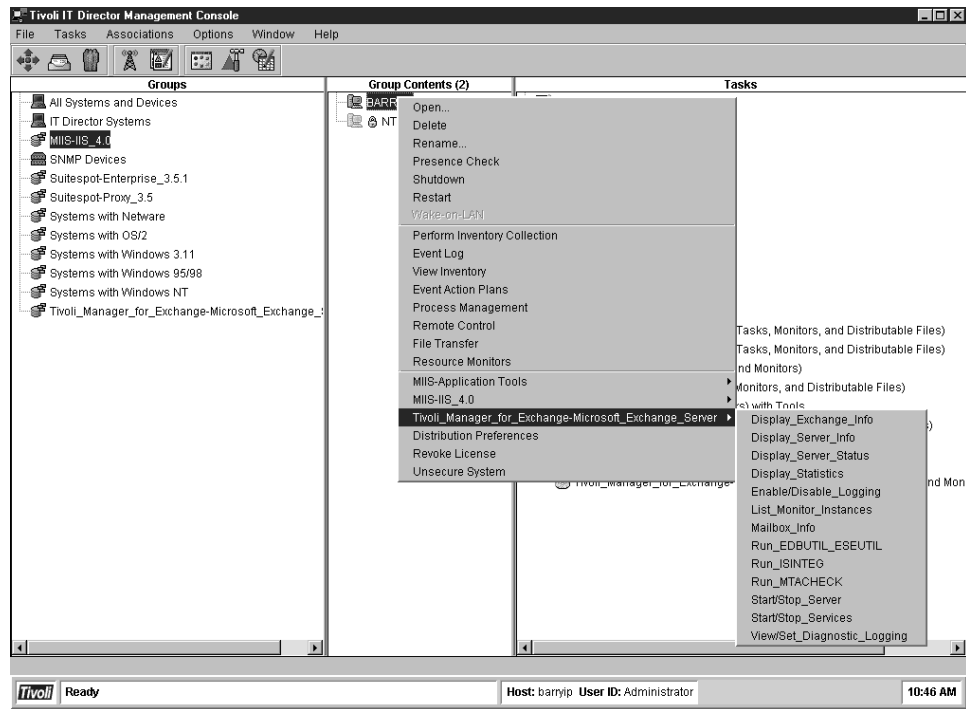


Figure 202. Execution of Display Server Information

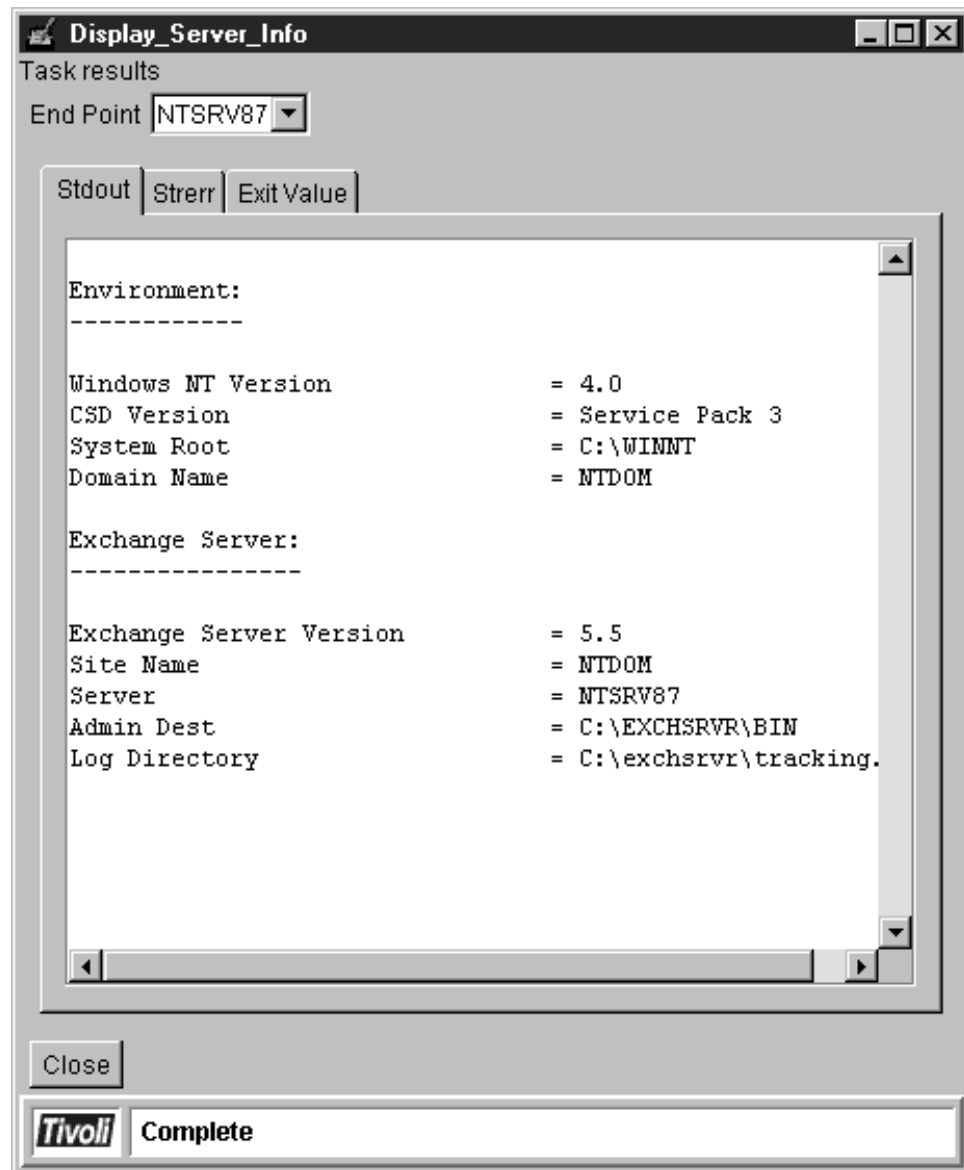


Figure 203. Example of Display Server Information

In Figure 203 we show an example of the type of information that can be obtained from the task *Display Server Info*. We had installed service pack 1 on our Exchange Server but that information can't be obtained here.

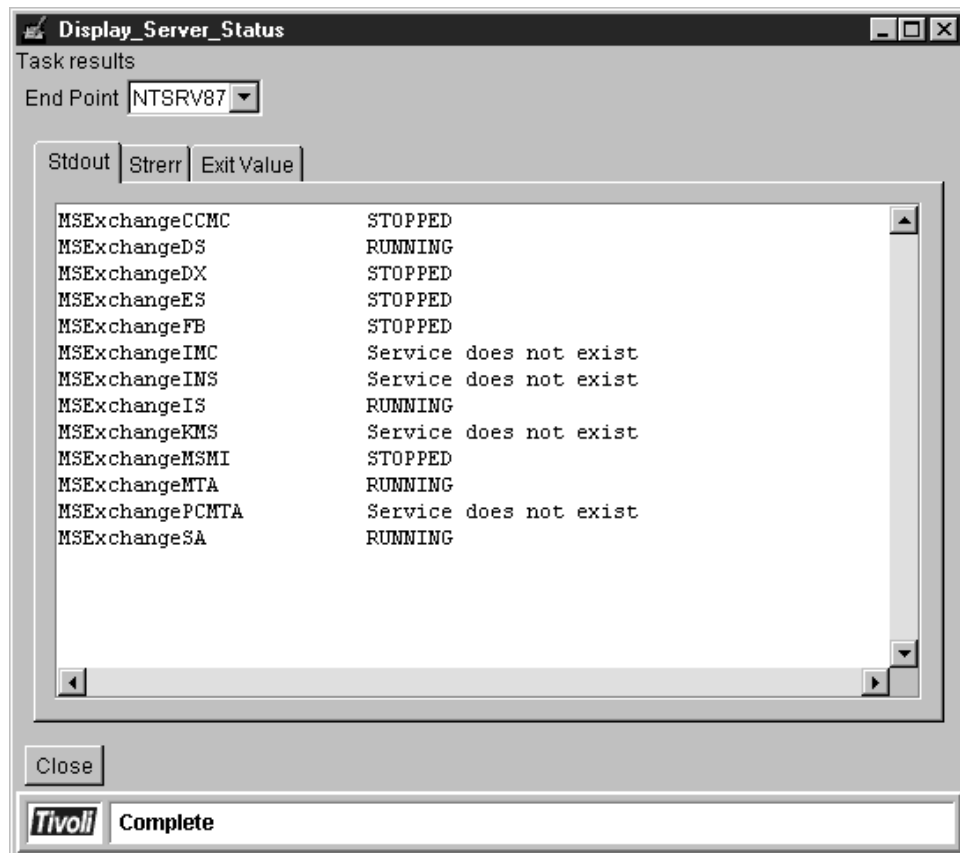


Figure 204. Example of Display Server Status

Figure 204 shows an example of the information obtained by clicking on **Display Server Status**. This task easily tells you if one of your services are not running on your Microsoft Exchange Server.



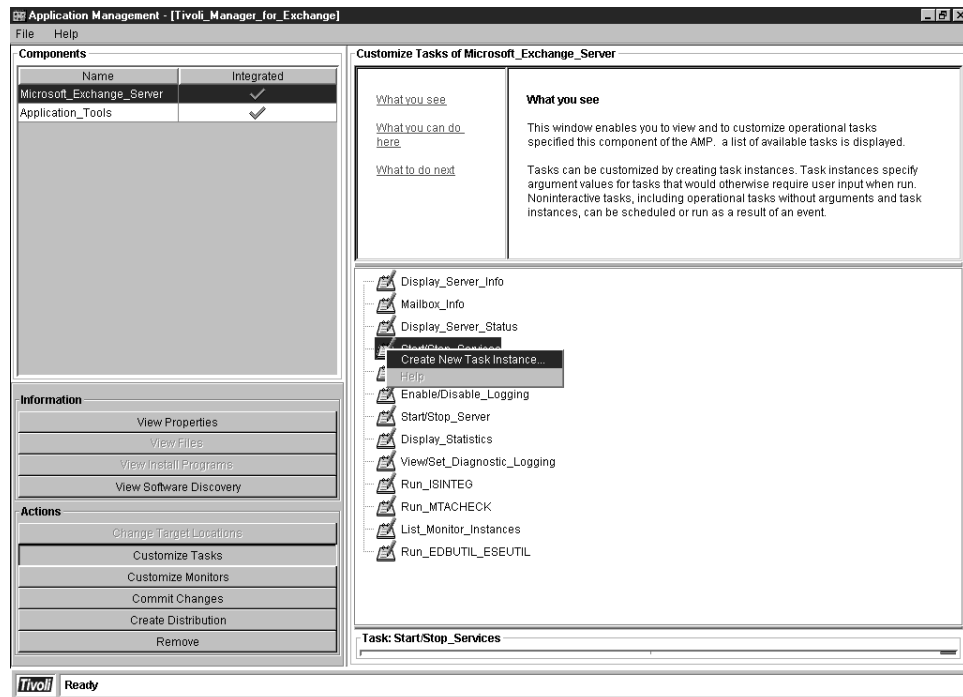


Figure 205. Create New Task Instance for Start/Stop Services

When you right-click on **Start/Stop Services** the Create New Task Instance option is available. When you choose this menu option the following window will pop up.

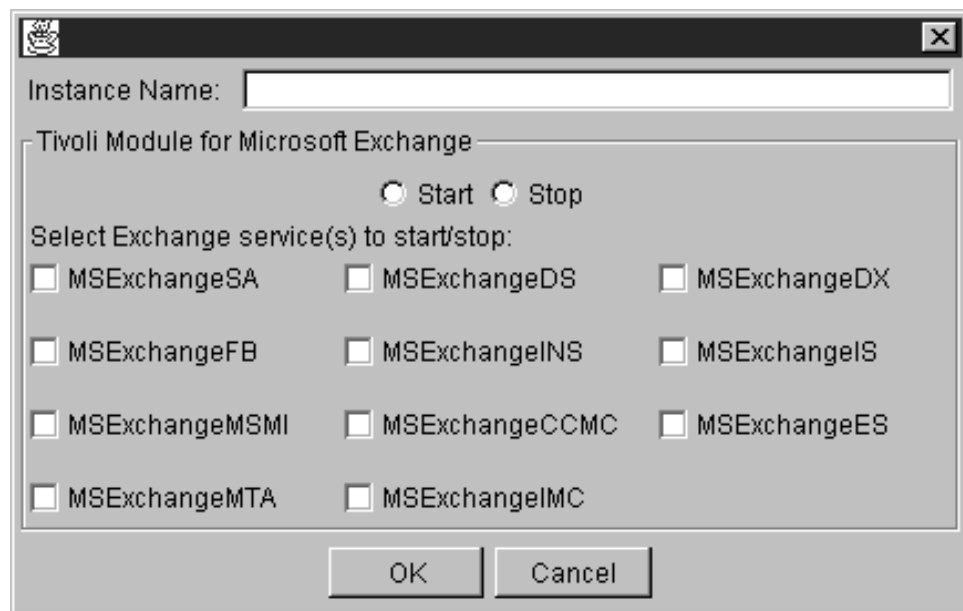


Figure 206. Dialog for Start/Stop Services

You can create several tasks to start and stop services running on a Microsoft Exchange Server. You should configure tasks to start and stop each service that is running on your Exchange server. Remember that not all of these services might be running on your Microsoft Exchange Server. We also recommended that you configure two emergency tasks: one that stops all services and one that starts all services that are running on your Microsoft Exchange Server. If you have more

than one Microsoft Exchange Server you might have to have multiple tasks, one for each Microsoft Exchange Server.

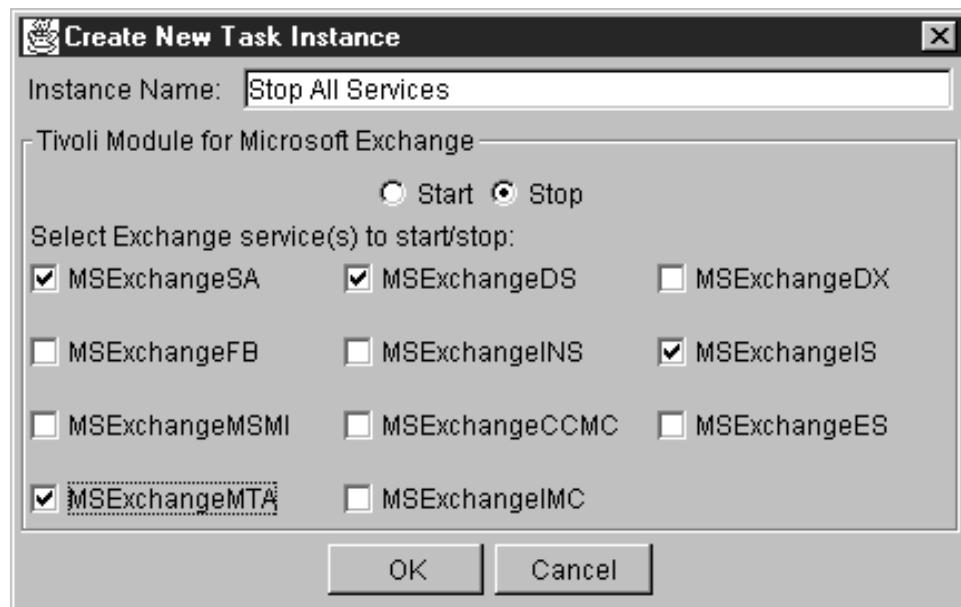


Figure 207. Example of Emergency Stopping All Services

In Figure 207 we show an example of an Emergency Task that would stop all of the services that we use on our Microsoft Exchange Server. To find out which services are running on your Microsoft Exchange Server you can run the Display Server Status task as shown in Figure 204 on page 146.

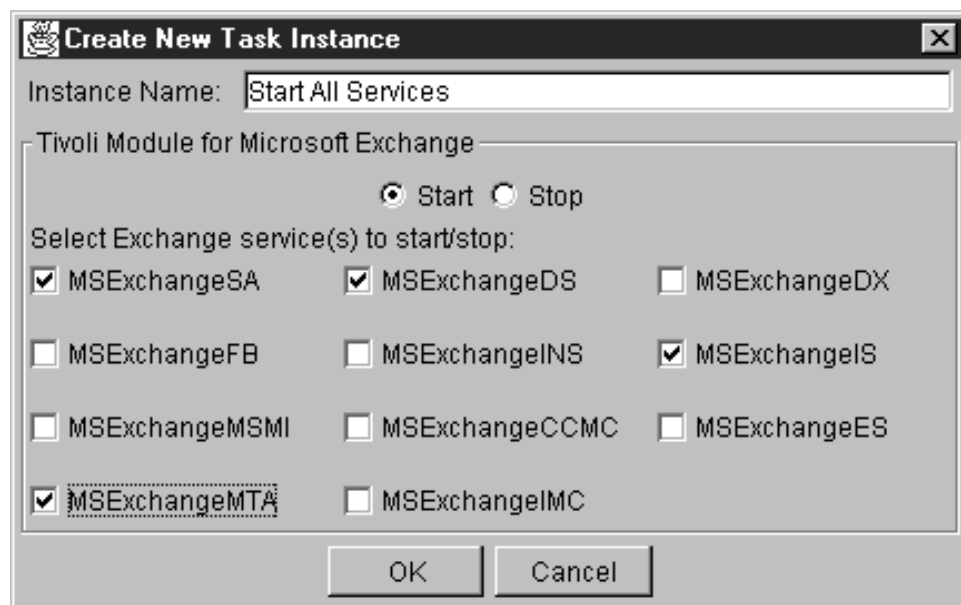


Figure 208. Example of Emergency Start of All Services

If you have a way of stopping all your services you should also have a task that will start all the services on your Microsoft Exchange Server. For the Microsoft Exchange Server environment we were using, that would mean starting the

MSExchangeSA, MSExchangeDS, MSExchangeIS and MSExchangeMTA services as shown in Figure 208.

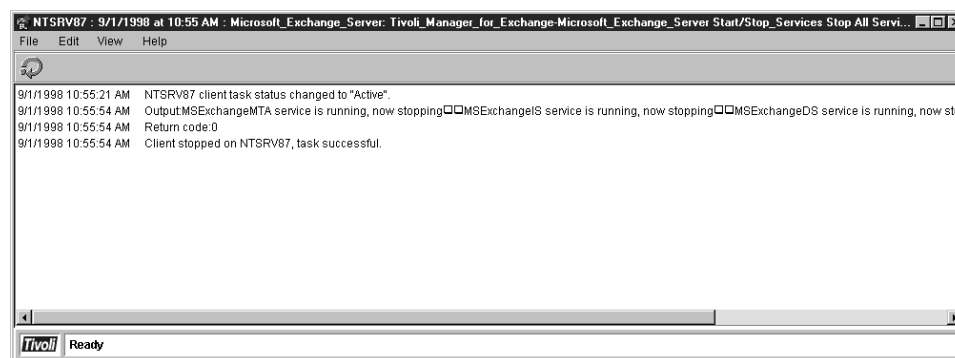


Figure 209. Example of Log After Stopping All Services

After running the task to stop all of the services you can look in the log to see the results. The detailed log shows that you have successfully executed the predefined task Stop All Services from the Tivoli IT Director console.

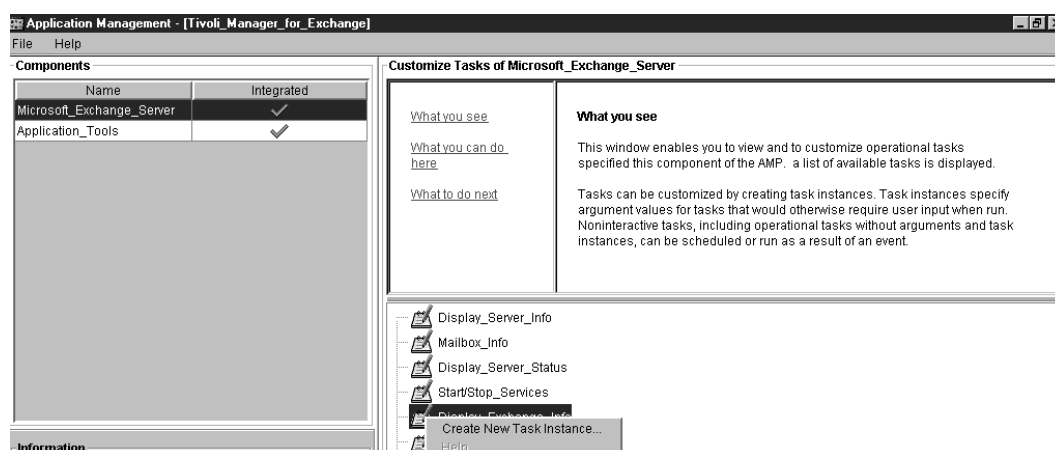


Figure 210. Create New Task Instance for Display Exchange Information

In Figure 210 you see that when you right-click on **Display Exchange Information**, the Create New Task Instance option is available. When you choose that menu option the following window will pop up.

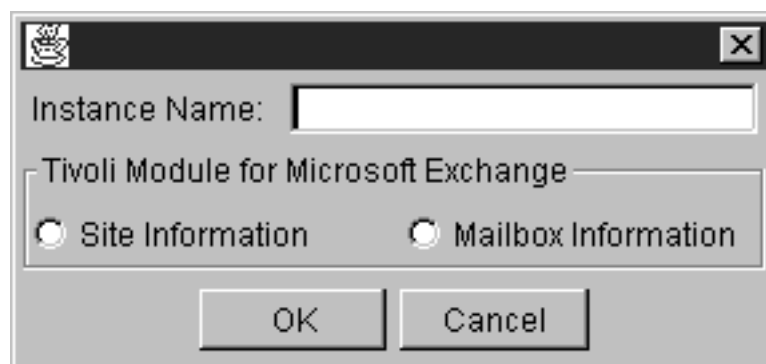


Figure 211. Dialog for Display Exchange Information

As shown in Figure 211, you have two choices when configuring this task.

If you do not create a new task instance you can also perform this task from the Tivoli IT Director console and see this dialog. The same rule applies for the next two task instances, Enable/Disable Logging and Start/Stop Server. We recommend that you create new task instances for all three of these tasks so that you can add these tasks to an Event Action Plan or as an automatic response to an error.

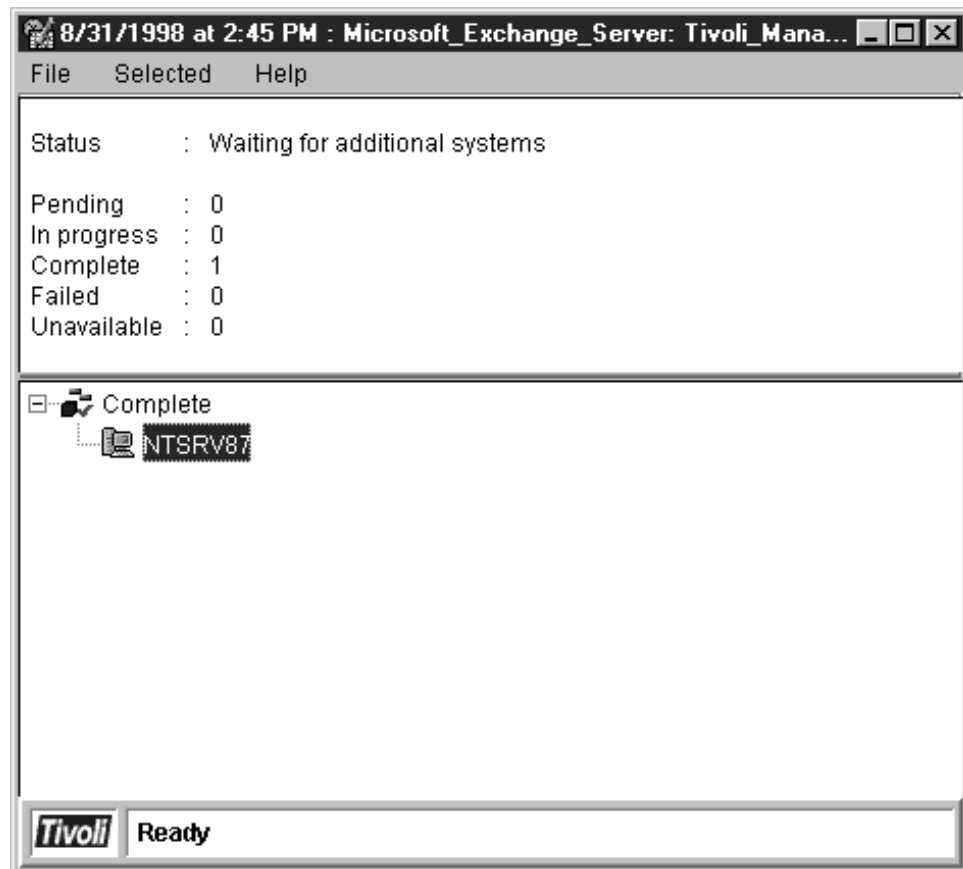


Figure 212. Executing the Task Stop Server

In Figure 212 we show the dialog that occurs when you execute the task Stop Server. In the bottom pane we can see that the task is complete. To view more information you can right-click on **NTSRV87** to view the system log.

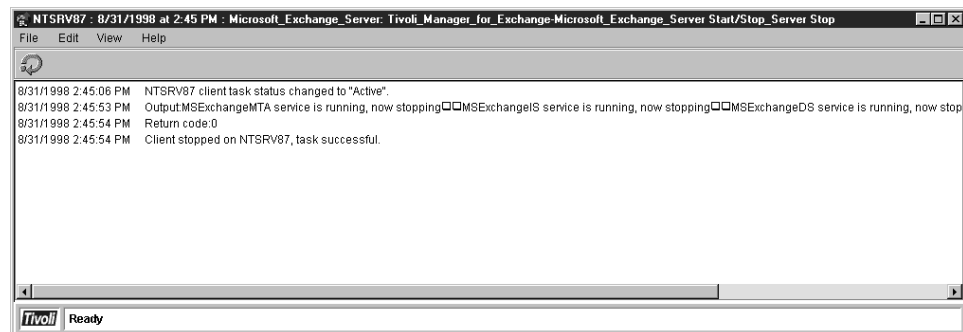


Figure 213. Log Entry for the Task Stop Server

In Figure 213 you can see an example of the system log. By default it will only show you minimal information but if you click on **View, Detail** and choose **High** you will see something that looks similar to Figure 213.

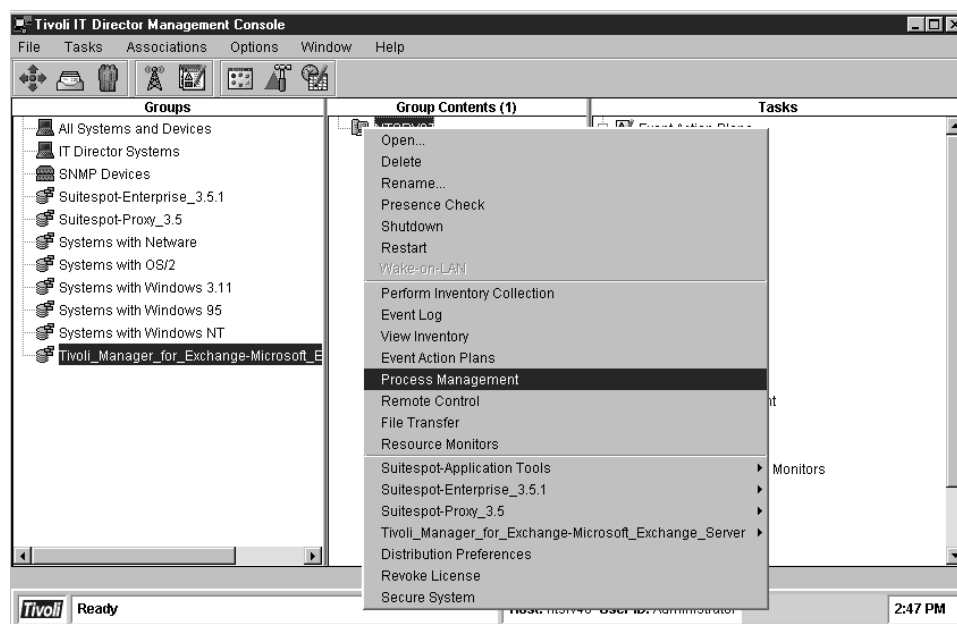


Figure 214. Process Management

Figure 214 shows us how to verify that the services actually have been stopped. By right-clicking on your Microsoft Exchange Server and choosing **Process Management** the following window will appear.

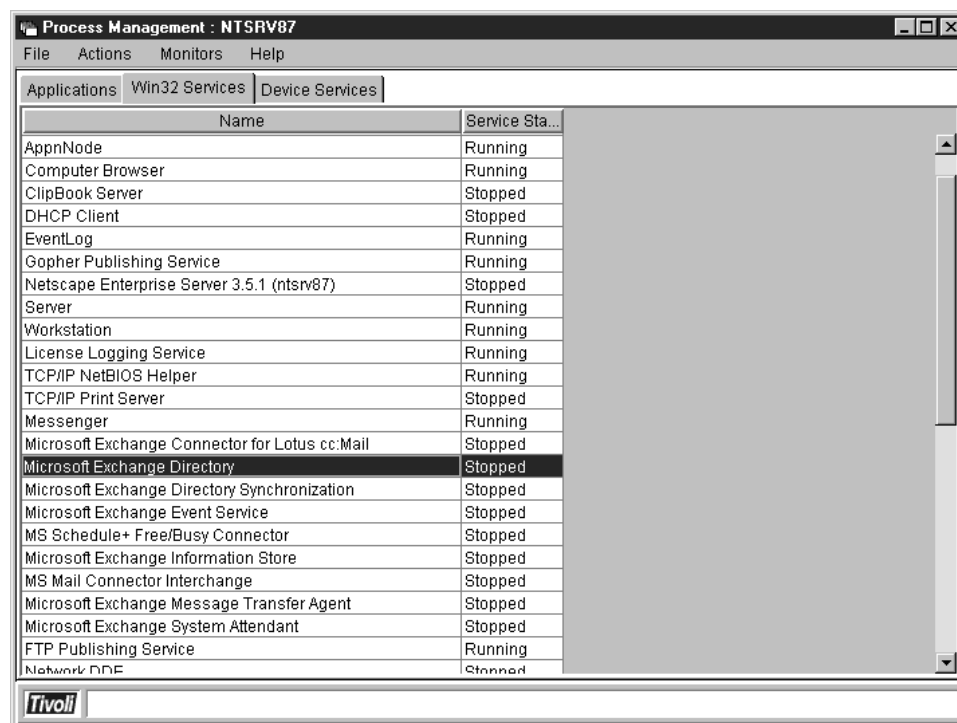


Figure 215. Verifying Stopped Processes

The screenshot displays the Tivoli IT Director Management Console interface. The main window is divided into three panes: 'Groups' on the left, 'Group Contents (2)' in the center, and 'Tasks' on the right. The 'Groups' pane lists various system categories, including 'All Systems and Devices', 'IT Director Systems', 'MIIIS-IIS\_4.0', 'SNMP Devices', 'Suitespot-Enterprise\_3.5.1', 'Suitespot-Proxy\_3.5', 'Systems with Network', 'Systems with OS/2', 'Systems with Windows 3.11', 'Systems with Windows 95/98', 'Systems with Windows NT', and 'Tivoli\_Manager\_for\_Exchange-Microsoft'. The 'Group Contents (2)' pane shows a list of tasks for the selected group, including 'Open...', 'Delete', 'Rename...', 'Presence Check', 'Shutdown', 'Restart', 'Wake-on-LAN', 'Perform Inventory Collection', 'Event Log', 'View Inventory', 'Event Action Plans', 'Process Management', 'Remote Control', 'File Transfer', 'Resource Monitors', 'MIIIS-Application Tools', 'MIIIS-IIS\_4.0', 'Tivoli\_Manager\_for\_Exchange-Microsoft\_Exchange\_Server', 'Distribution Preferences', 'Revoke License', and 'Unsecure System'. The 'Tasks' pane shows a list of tasks for the selected group, including 'Display\_Exchange\_Info', 'Display\_Server\_Info', 'Display\_Server\_Status', 'Display\_Statistics', 'Enable/Disable\_Logs', 'List\_Monitor\_Instance', 'Mailbox\_Info', 'Run\_EDBUTIL\_ESEUTIL', 'Run\_ISINTEG', 'Run\_MTACHECK', 'Start/Stop\_Server', and 'Start/Stop\_Services'. The status bar at the bottom shows 'Tivoli Ready' and 'Host: barryip User ID: Administrator'.

In Figure 216 we ran the task to start the Microsoft Exchange Server services. The tasks that will be started are the ones that were set up during the customization of the tasks.

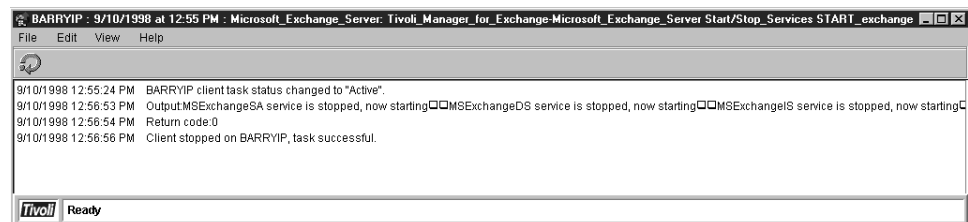


Figure 217 shows us the detailed log after the Start Server task is complete. We can see in the log all the different services that were started on the remote system.

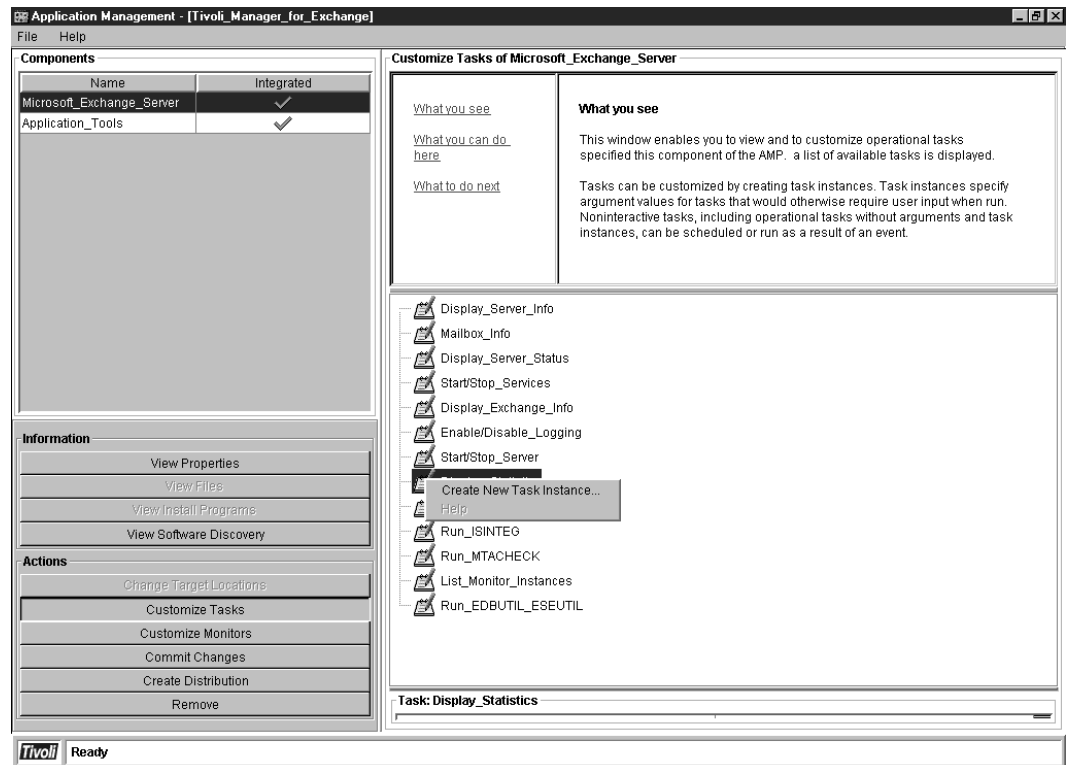


Figure 218. Create New Task Instance for Display Statistics

The Display Statistics task could be very useful if you don't want to have a monitor continually running on your exchange server. It would be better for overall system utilization to gather statistical information at pre-defined intervals, instead of gathering the information all the time. It might make sense that the task to run it was executed just a few times each week on a scheduled basis.

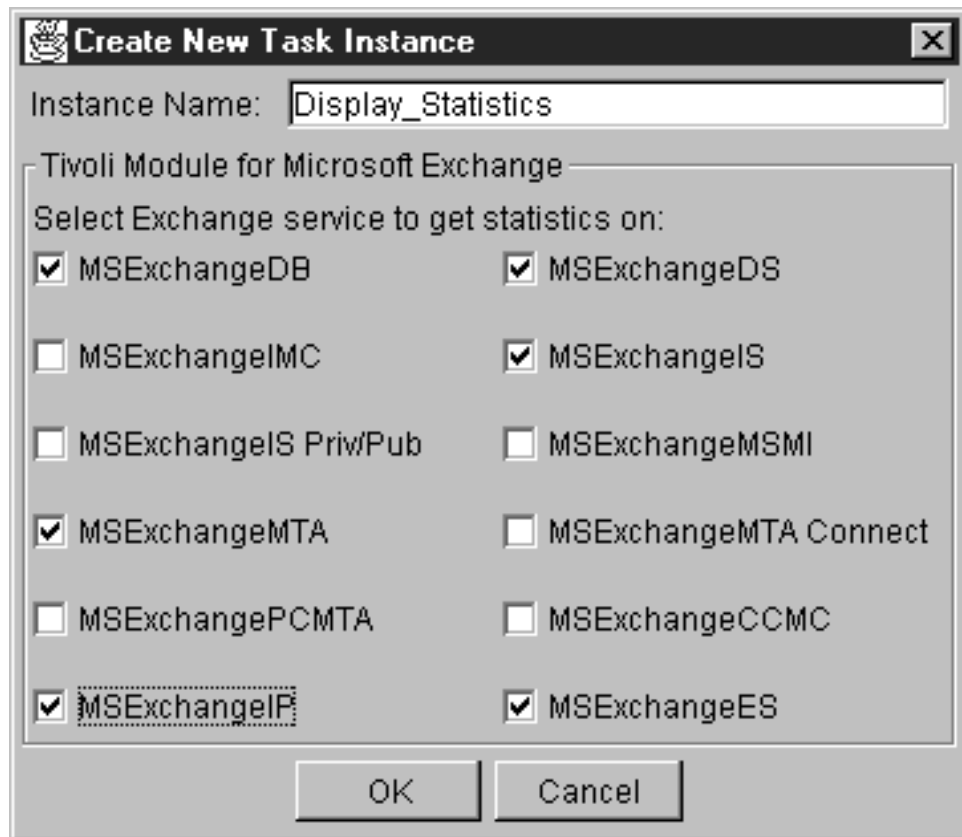


Figure 219. Dialog for Display Statistics

The different instances that you can get statistics on are:

- MExchangeDB - Microsoft Exchange DataBase  
One useful statistic that this instance will show you is how effective your database buffer cache is.
- MExchangeDS - Microsoft Exchange Directory
- MExchangeIMC - Microsoft Exchange Internet Mail Connector
- MExchangeIS - Microsoft Exchange Information Store  
One useful statistic that this instance will show you is how many users are connected to your Microsoft Exchange Server.
- MExchangeMSMI - Microsoft Exchange MS Mail Connector Interchange
- MExchangeMTA - Microsoft Exchange Message Transfer Agent
- MExchangePCMTA - MS Mail Connector (PC) MTA
- MExchangeCCMC - CC Mail Connector
- MExchangeIP - Microsoft Exchange Internet Protocol, which includes POP3, NNTP, LDAP and IMAP4
- MExchangeES - Microsoft Exchange Event Service



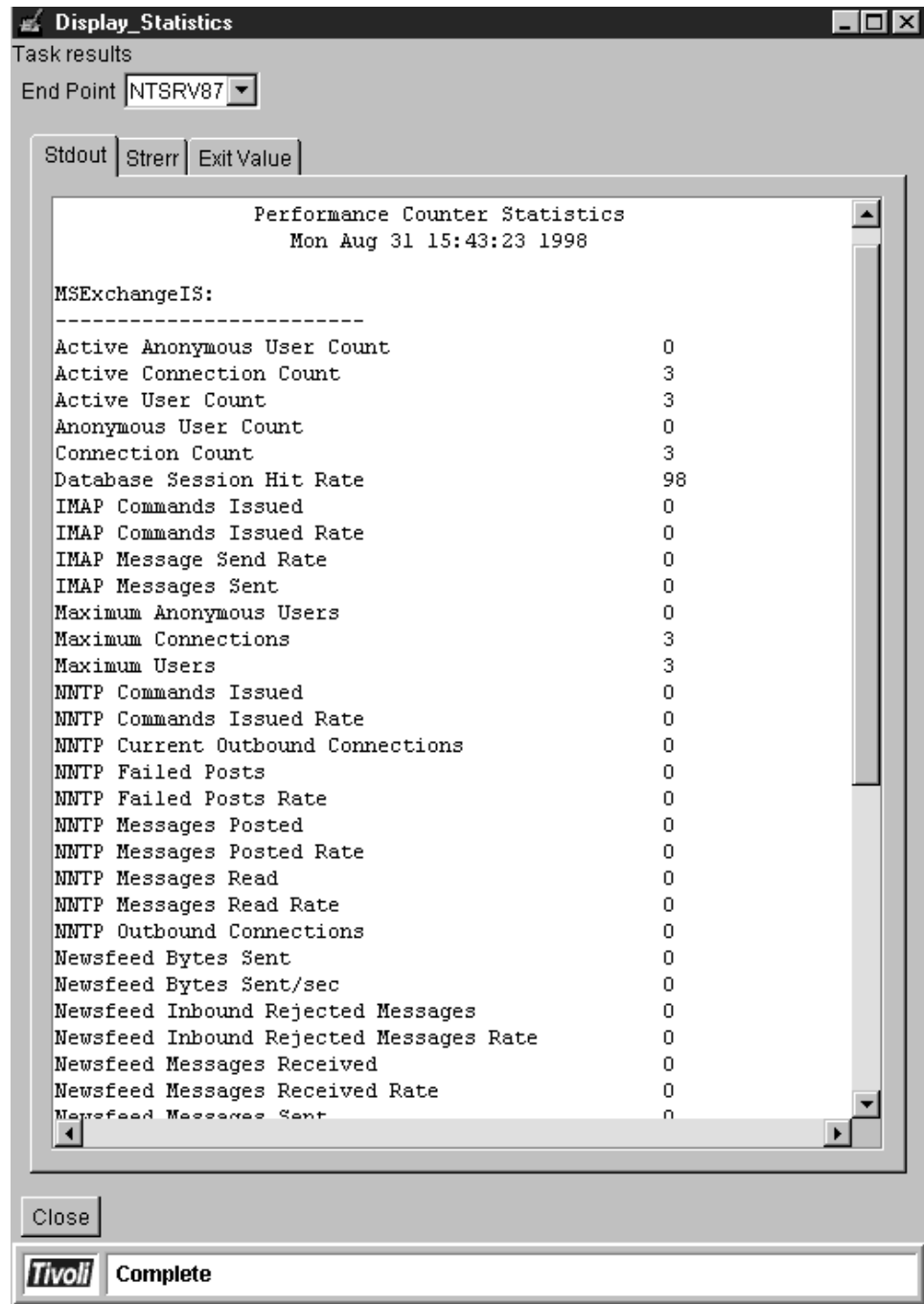


Figure 220. Performance Counter Statistics

In Figure 220 you can see the output of executing the task Display Statistics and asking for statistics about the MExchangeIS. For example, you can see that we had three users connected to this server.

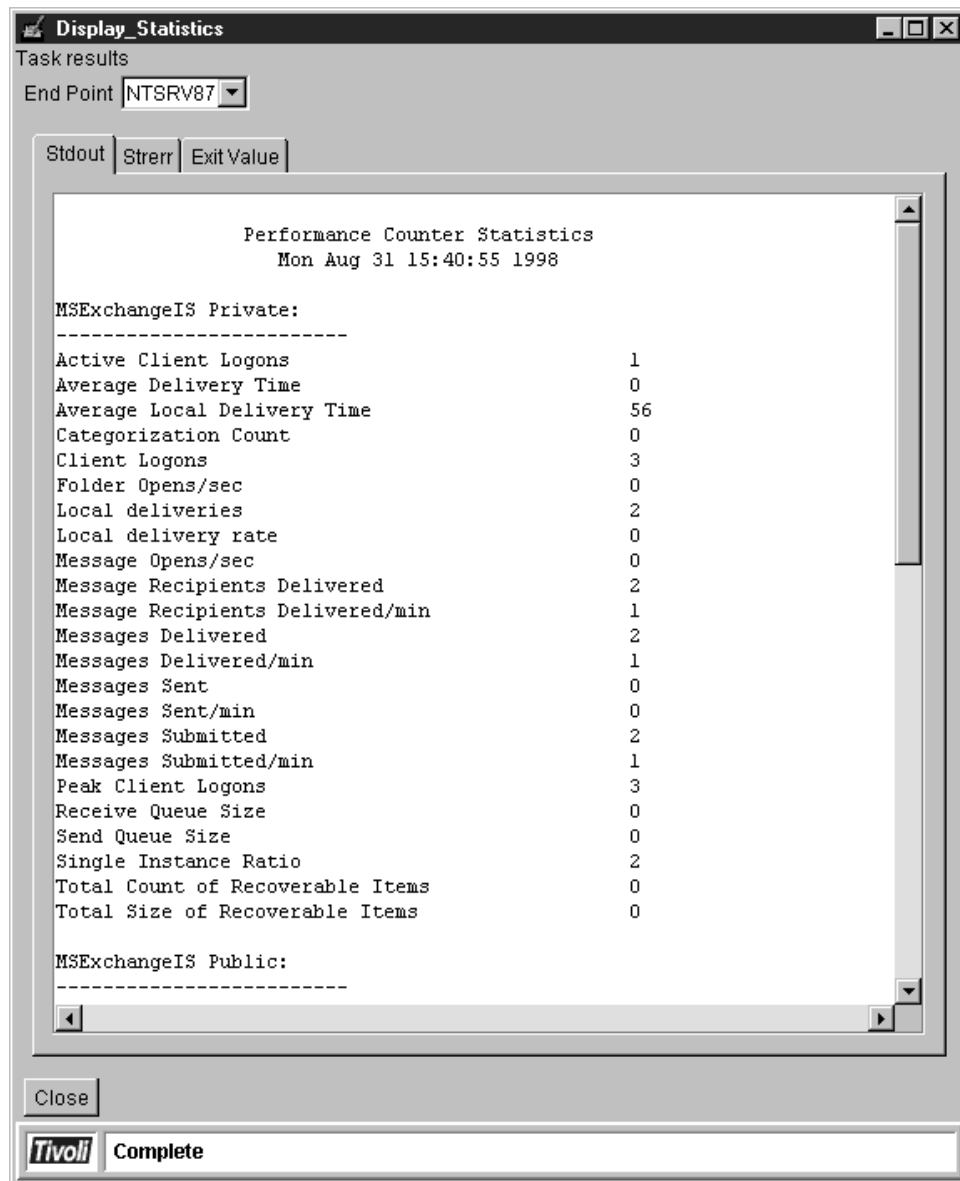


Figure 221. MSExchangeIS Private Store

Figure 221 show some statistics from our Microsoft Exchange Server which originates from the MSExchangeIS Private store. We executed the Display Statistics task from the Tivoli IT Director console and chose MSExchangeIS Private as the source of information. The counters are sorted in alphabetical order so it will be easy to find the one you are interested in. You can, for example, find out the size of the send queue here.

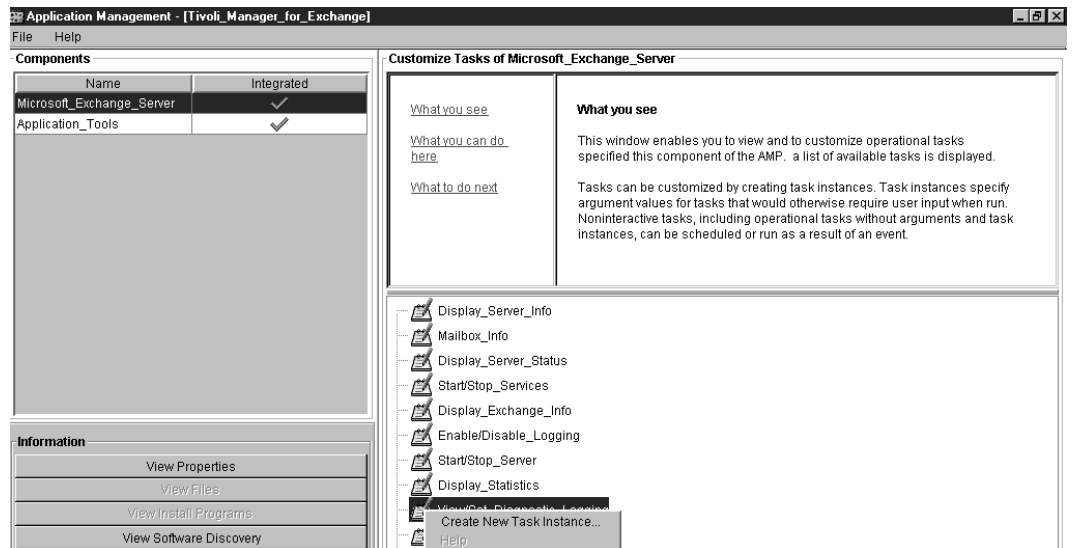


Figure 222. Create New Task Instance for View/Set Diagnostic Logging

Figure 222 shows you how to create a new task instance for diagnostic logging. This is the same diagnostic logging that you can turn on with the Microsoft Exchange Admin Tool. Remember that all logging is turned off by default and the recommendation is to keep logging to a minimum or the logs will grow very large.

**Note:** Diagnostic logging is written to the Application Event Log.

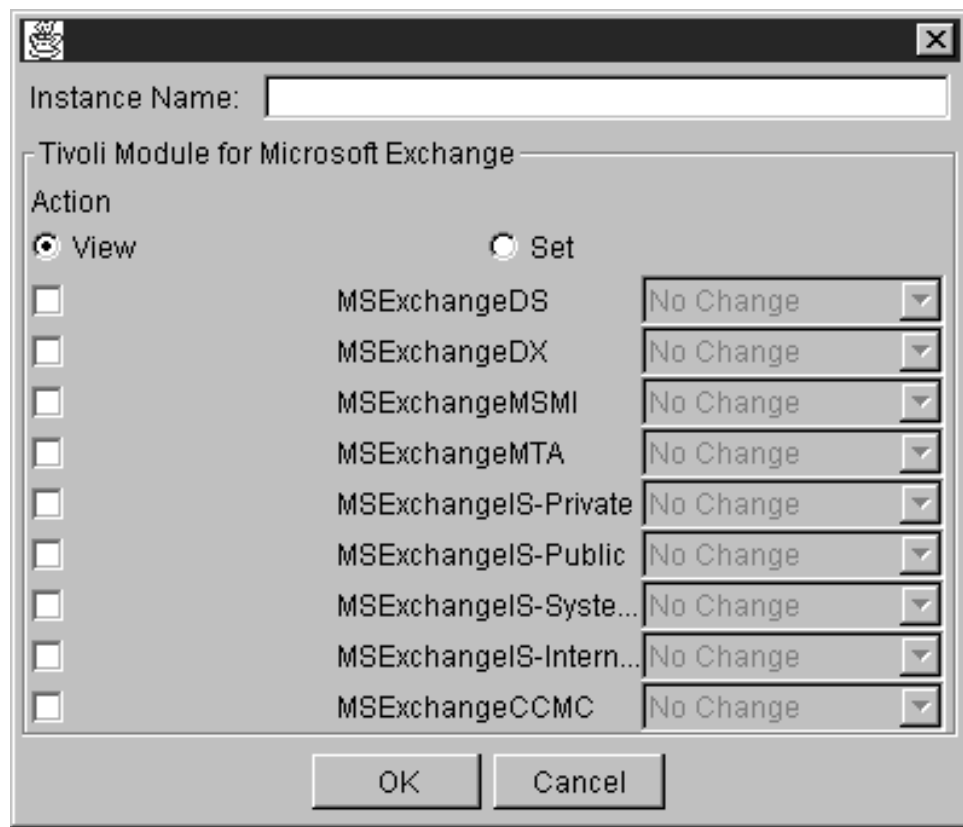


Figure 223. Dialog for View Diagnostic Logging

You can create predefined tasks for viewing different Microsoft Exchange diagnostic *log settings* very easily with Tivoli IT Director. This task is not for viewing the log itself but to which level the logging has been set. The newly created tasks can be accessed by right-clicking on the managed host in the Tivoli IT Director console. The abbreviations in Figure 223 on page 157 are also described in Figure 219 on page 154.

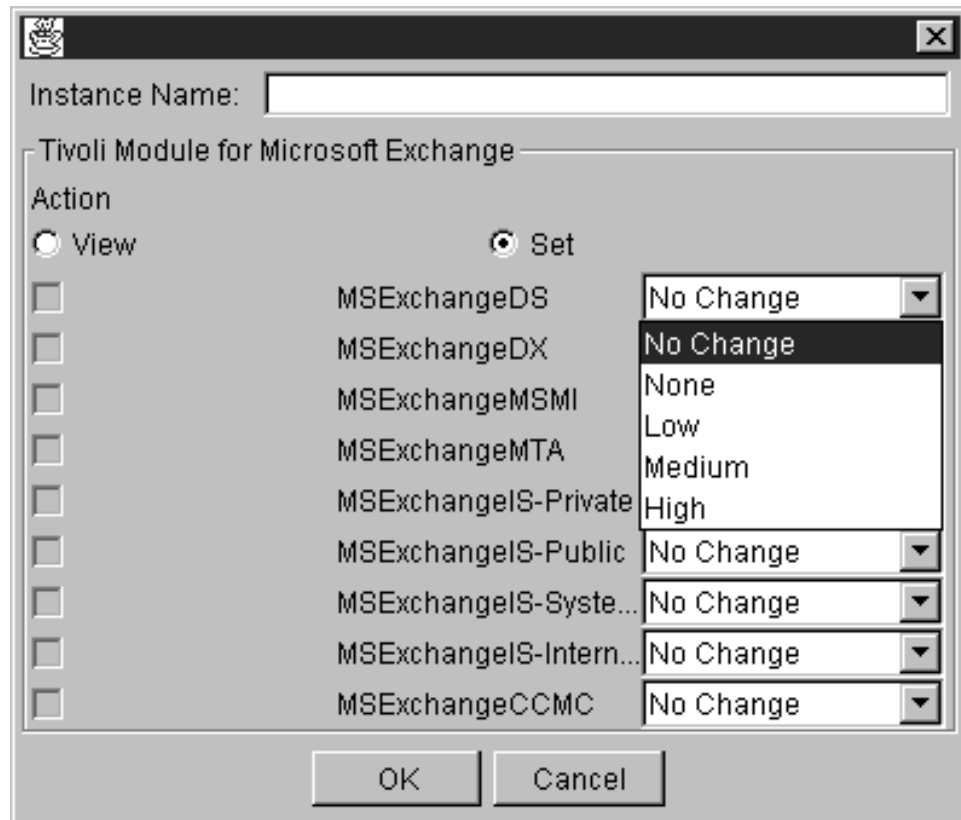


Figure 224. Dialog for Set Diagnostic Logging

In Figure 224 you can see the options available when you click on **diagnostic logging**. A good way to implement this task is to have one task that switches on the logging for a specific information store and also one that switches diagnostic logging off. If you set it up this way you don't have to launch the Microsoft Exchange Admin Tool from the workstation where you are currently working, but instead you could do it from the Tivoli IT Director console.

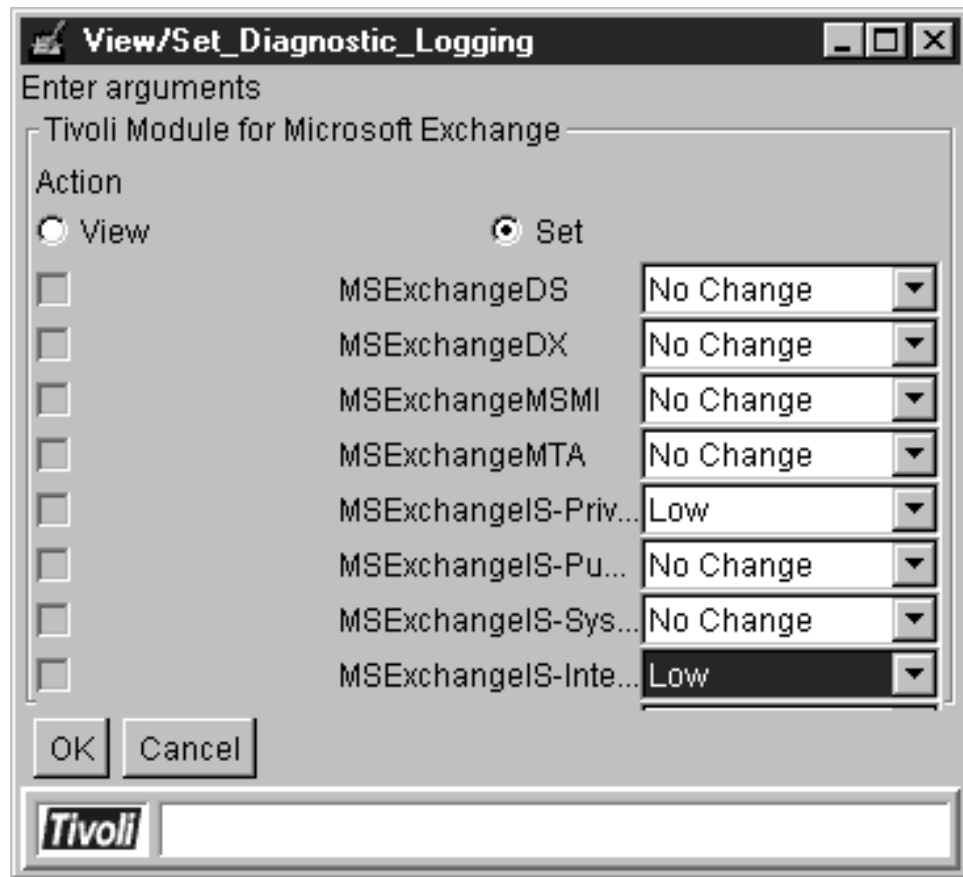


Figure 225. Example of Set Diagnostic Logging

We launched the View/Set Diagnostic Logging task from the Tivoli IT Director console. Since we launched it from there we do not have an input field at the top where you can give the instance a name. We chose to turn on logging for MExchangeIS-Private and MExchangeIS-Internet Protocols.

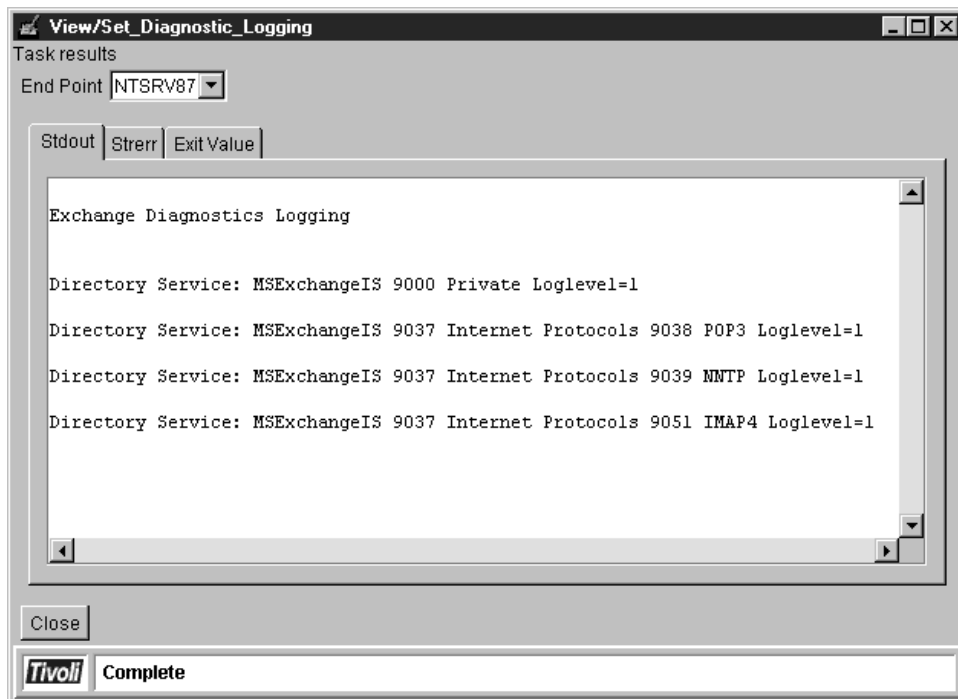


Figure 226. Diagnostic Logging

You can see that all the logs were turned on and no errors were reported.

**Event Viewer - Application Log on \\NTSRV87**

Log View Options Help

Date	Time	Source	Category	Event	User	Computer
9/1/98	4:15:00 AM	ESE97	Online Defragmer	179	N/A	NTSRV87
9/1/98	4:15:00 AM	MExchangeIS Pub General		1221	N/A	NTSRV87
9/1/98	4:15:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	4:15:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	4:00:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	4:00:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	3:45:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	3:45:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	3:30:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	3:30:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	3:15:00 AM	ESE97	Online Defragmer	180	N/A	NTSRV87
9/1/98	3:15:00 AM	ESE97	Online Defragmer	179	N/A	NTSRV87
9/1/98	3:15:00 AM	MExchangeIS Pub General		1221	N/A	NTSRV87
9/1/98	3:15:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	3:15:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	3:00:49 AM	ESE97	Online Defragmer	180	N/A	NTSRV87
9/1/98	3:00:49 AM	ESE97	Online Defragmer	179	N/A	NTSRV87
9/1/98	3:00:47 AM	MExchangeSA General		5004	N/A	NTSRV87
9/1/98	3:00:40 AM	MExchangeIS Priv Logons		1009	N/A	NTSRV87
9/1/98	3:00:40 AM	MExchangeSA General		5003	N/A	NTSRV87
9/1/98	3:00:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	3:00:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	2:45:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	2:45:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	2:30:00 AM	MExchangeIS Priv General		1209	N/A	NTSRV87
9/1/98	2:30:00 AM	MExchangeIS Priv General		1208	N/A	NTSRV87
9/1/98	2:15:01 AM	ESE97	Online Defragmer	180	N/A	NTSRV87
9/1/98	2:15:00 AM	MExchangeIS Pub General		1221	N/A	NTSRV87
9/1/98	2:15:00 AM	ESE97	Online Defragmer	179	N/A	NTSRV87

Figure 227. Windows NT Application Event Log

To view the logs, access the Windows NT event log on the monitored host, since all diagnostic logging information for Microsoft Exchange is written to the event log. Figure 227 shows some examples of what kind of entries will be written to the event log.

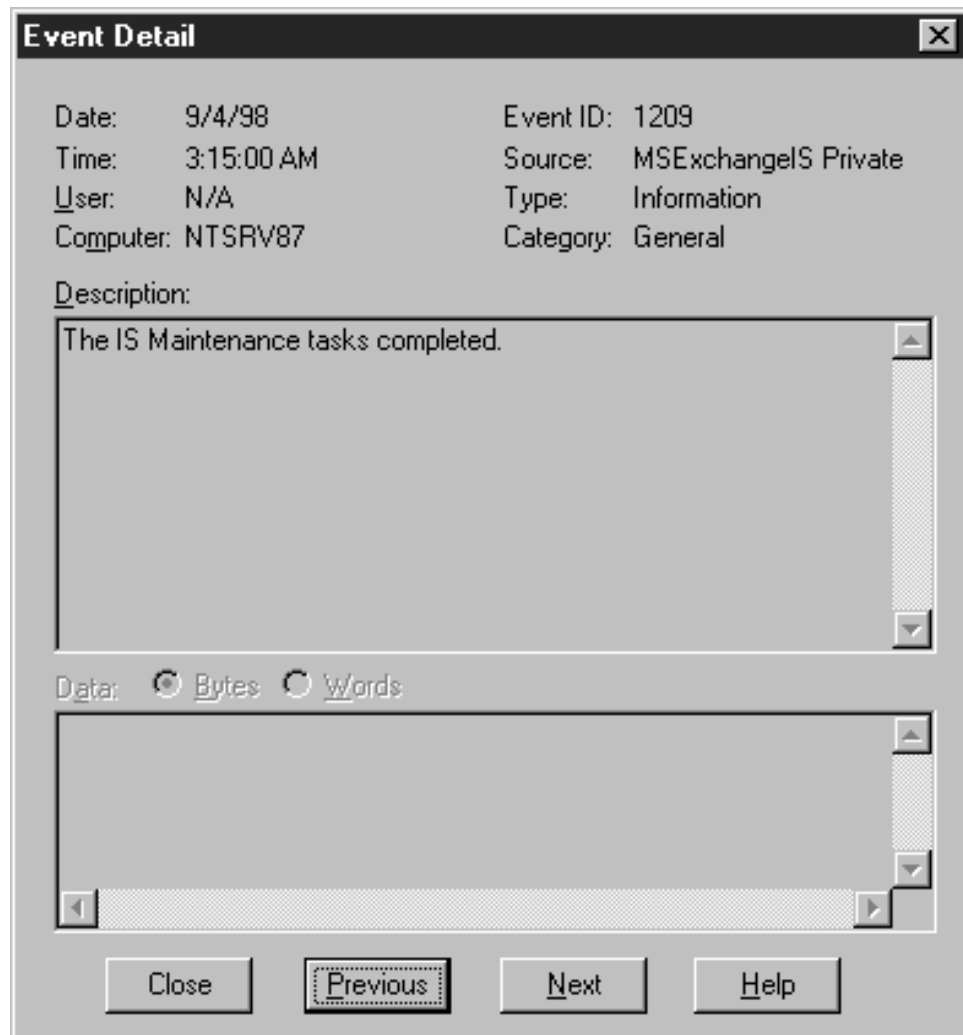


Figure 228. Example of Detailed Diagnostic Logging Instance

We opened one of the log instances in the Windows NT application event log to see the detailed information for the logged instance.

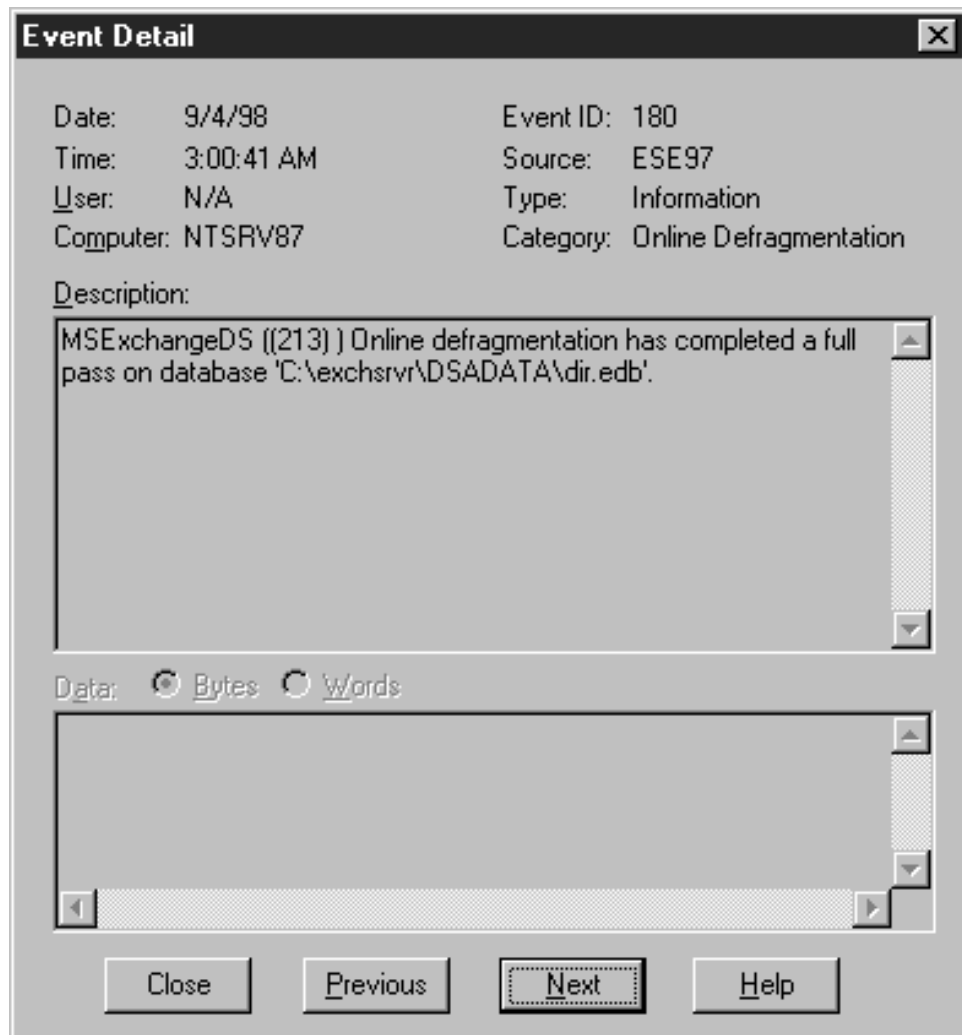


Figure 229. Example of Detailed Diagnostic Logging Instance

Figure 229 shows detailed information from one of the other log instances.



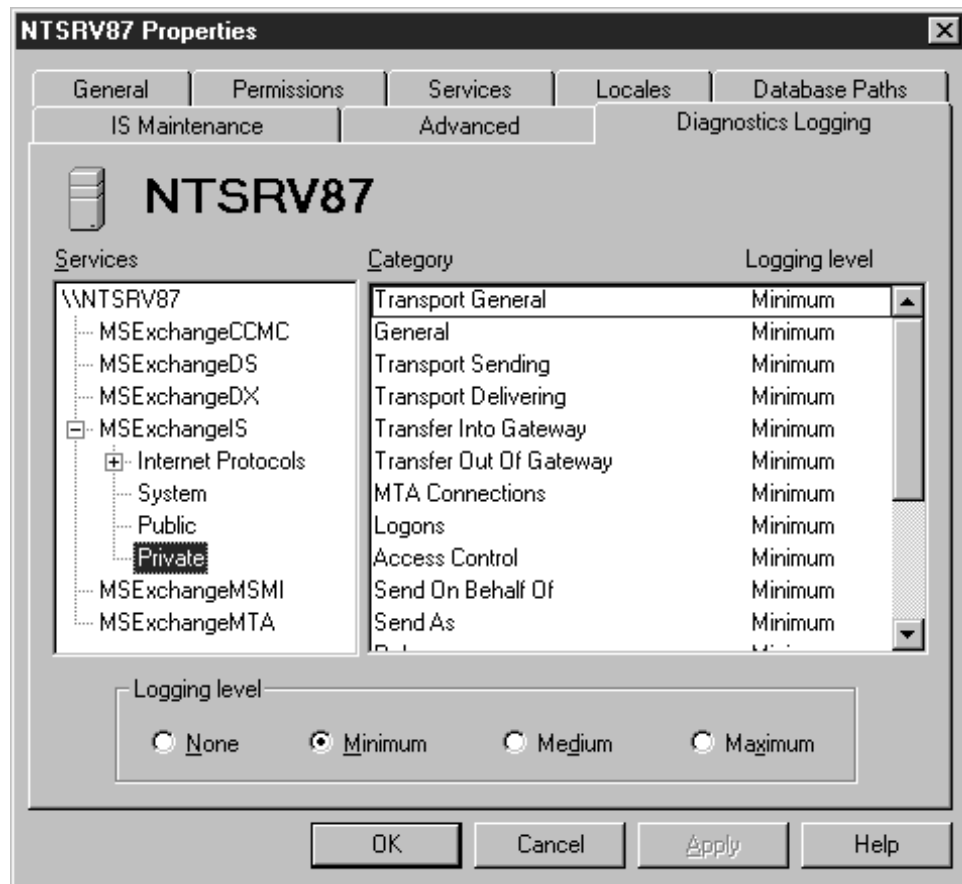


Figure 230. Example of Diagnostic Logging Settings

In Figure 230 we had launched the Exchange Administration Program and chose **Properties** for NTSRV87. We then clicked on **Diagnostic Logging** to verify that Tivoli IT Director really had switched the logging level to Minimum, as we had configured in the task.

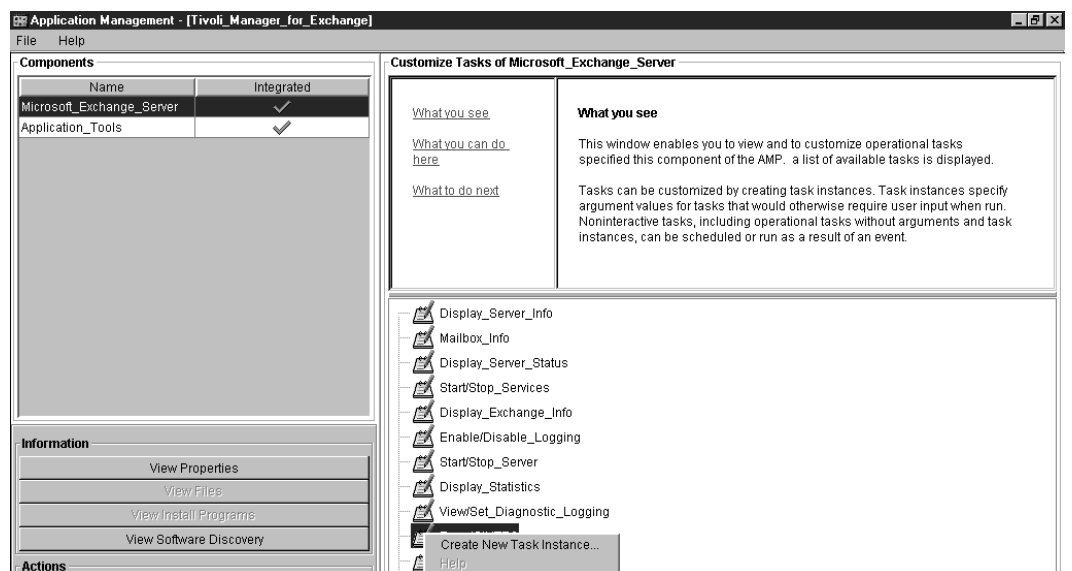
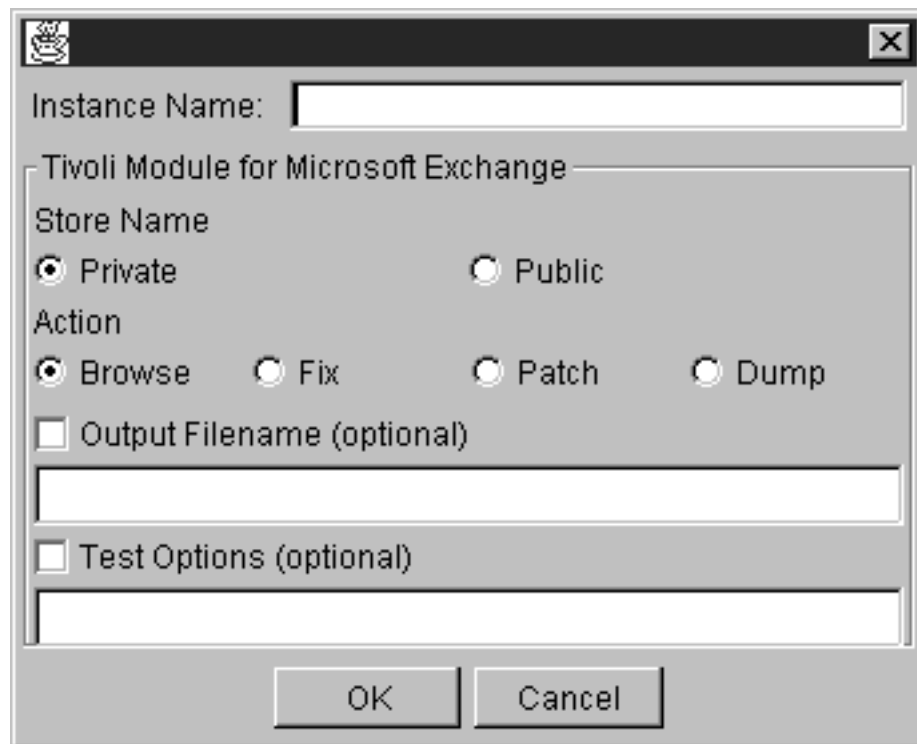


Figure 231. Create New Task Instance for Run\_ISINTEG

In Figure 231 we created a new task instance for the Run\_ISINTEG task. The Microsoft Exchange Information Store database needs to be checked regularly and sometimes even repaired. That is done with the ISINTEG utility.



The dialog box is titled "Tivoli Module for Microsoft Exchange". It contains the following fields and options:

- Instance Name:** A text input field.
- Store Name:**
  - ☒ Private
  - ☐ Public
- Action:**
  - ☒ Browse
  - ☐ Fix
  - ☐ Patch
  - ☐ Dump
- Output Filename (optional):** A checkbox followed by a text input field.
- Test Options (optional):** A checkbox followed by a text input field.
- Buttons:** "OK" and "Cancel" buttons at the bottom.

Figure 232. Dialog for Run\_ISINTEG

The ISINTEG utility is normally a command-line utility, but with Tivoli IT Director you have a nice graphical interface as shown in Figure 232. The most common command-line switches are represented by radio buttons. To learn more about the optional Test Options read the isinteg.doc located on the Microsoft Exchange Server 5.5 CD.

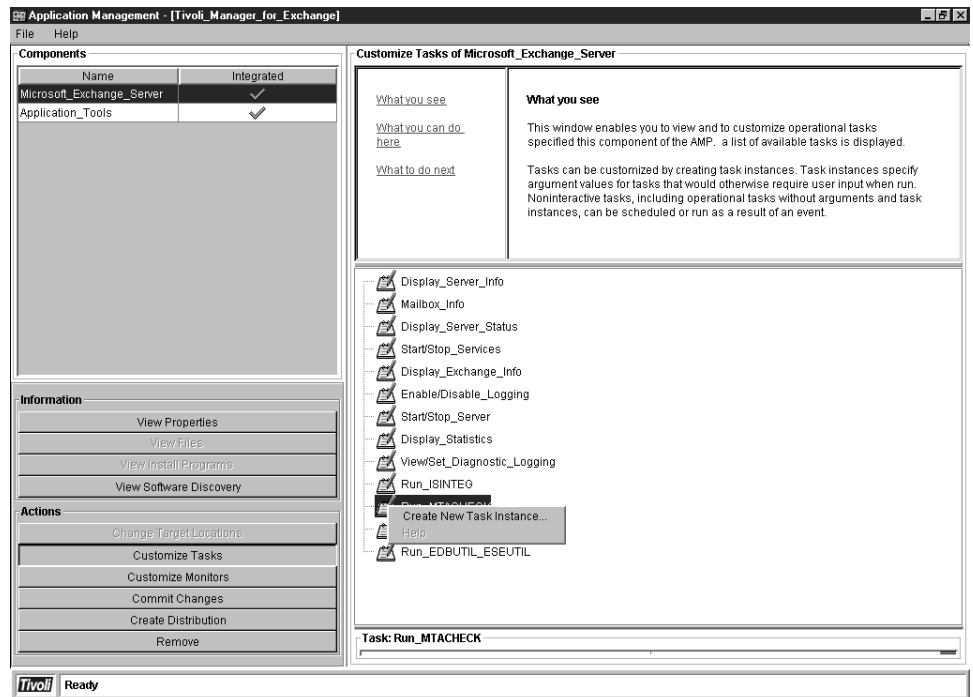


Figure 233. Create New Task Instance for Run\_MTACHECK

Figure 233 shows how to create a task instance for another command-line utility called MTACHECK. The message transfer agent (MTA) is one of the most important services running on a Microsoft Exchange Server. If the MTA gets corrupted or if it stops, you need to use the MTACHECK utility before it is restarted.

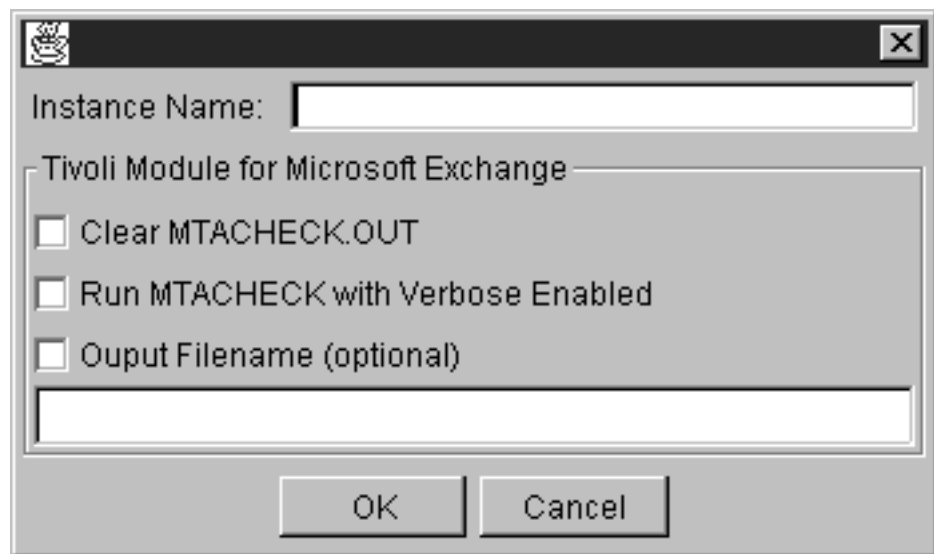


Figure 234. Dialog for Run\_MTACHECK

Figure 234 shows the graphical interface that Tivoli IT Director provides for the command-line utility MTACHECK. The first thing to remember is that this utility should be used with care, since you might remove data from the database that can't be restored. Secondly, always clear the MTACHECK.OUT directory, thereby removing any old files in that directory. We recommend that you run the utility in verbose mode so that you can choose your own file name for the log and save it

for future reference. It looks in the MTA queue for old objects that are causing problems and removes them. If the Microsoft Exchange Server seem to be routing messages very slowly there might be something in the MTA queue causing a problem.

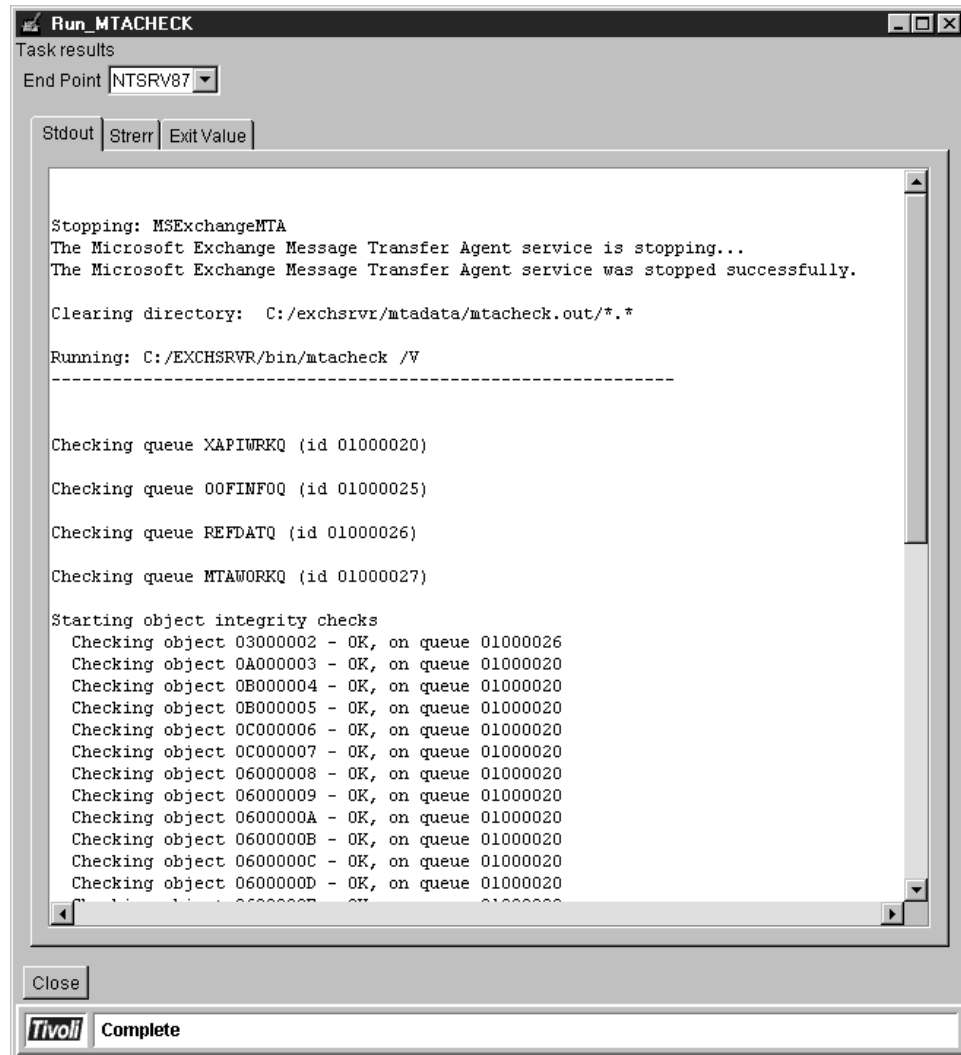


Figure 235. Example of an MTACheck

In Figure 235 you can see the result of an MTACheck on our Microsoft Exchange Server. You can also see that this task actually stops the Message Transfer Agent before doing the checking. When you run the MTACheck from a command prompt you have to remember to stop the Message Transfer Agent on your Microsoft Exchange Server before running the MTACheck.

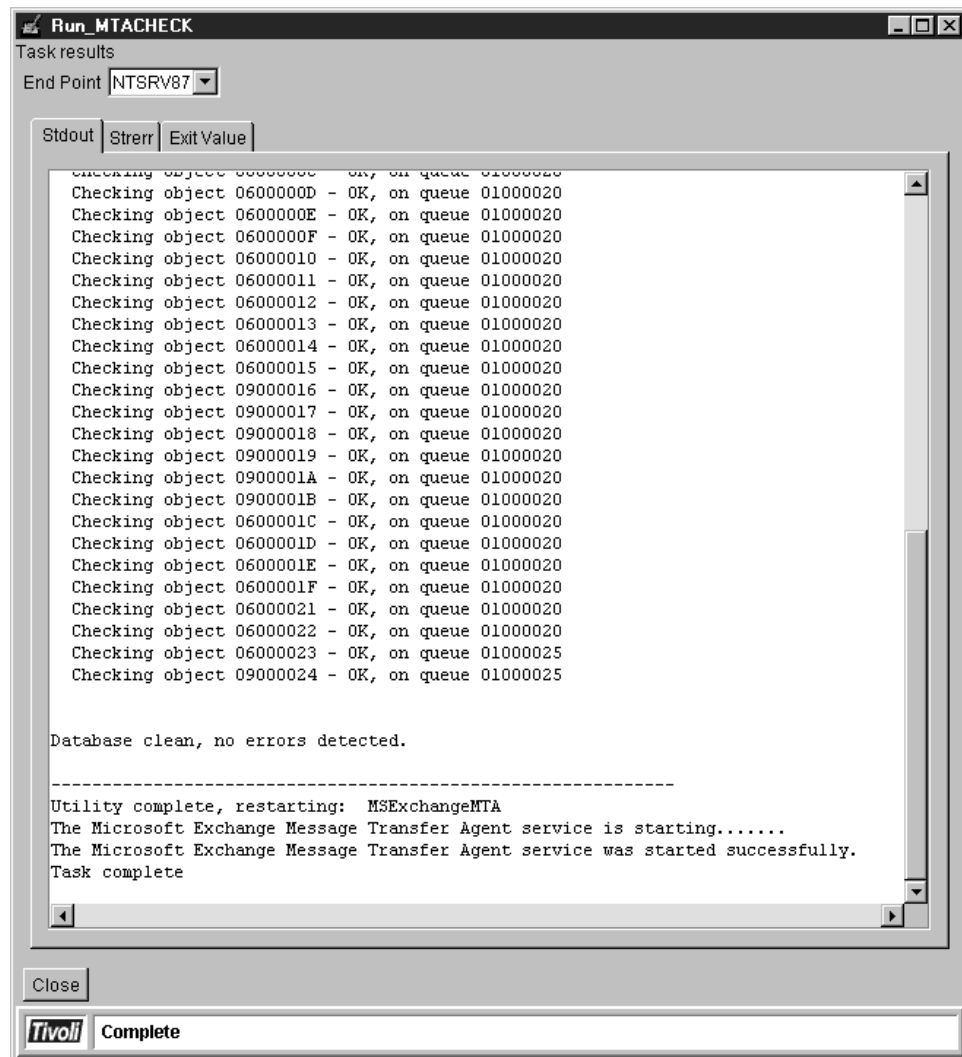


Figure 236. Example of MTACheck

We scrolled down the output window so that you can read all the information from the MTACheck that had executed. There were no errors found and at the end, the Message Transfer Agent is started automatically.

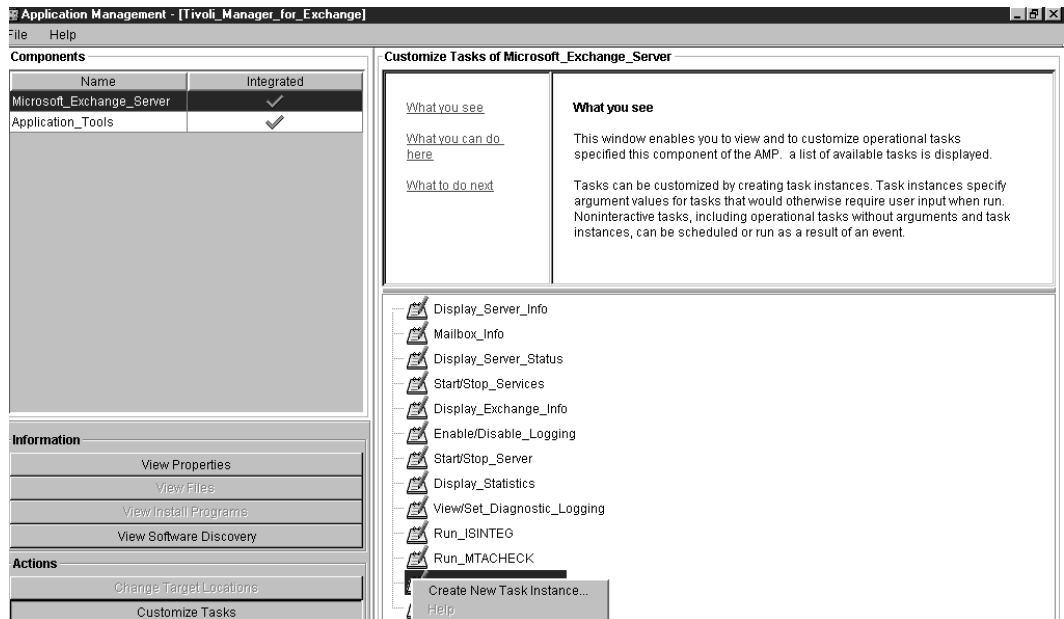


Figure 237. Create New Task Instance for List Monitor Instances

Now you can launch the task that you create.

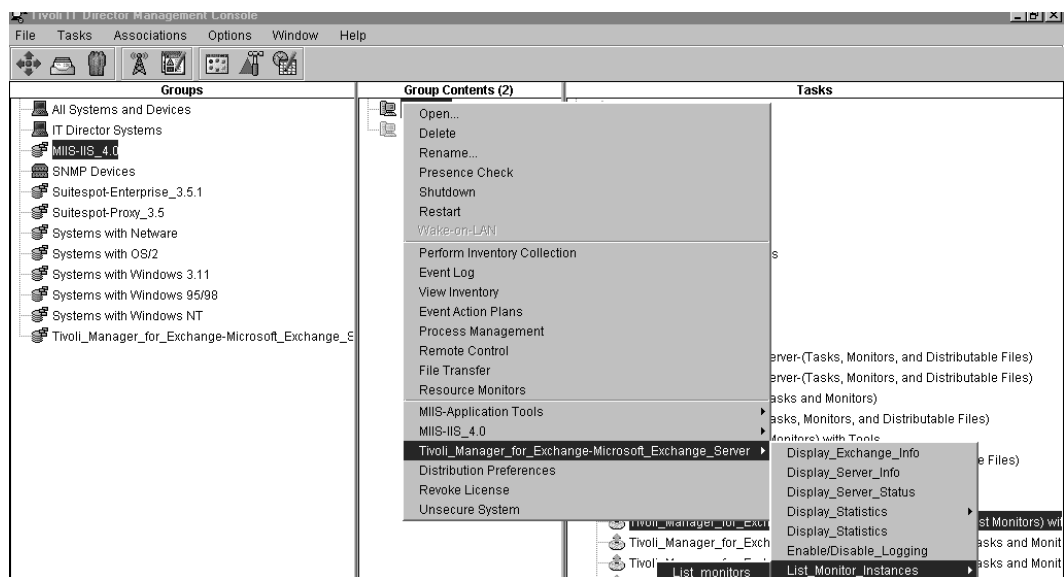


Figure 238. Launch List Monitor Instance

The following window pops-up for the List Monitor interface.

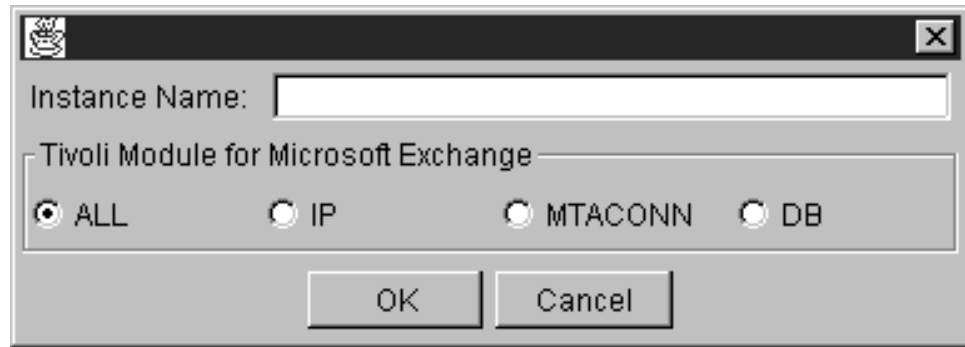


Figure 239. Dialog for List Monitor Instances

The third command-line utility which is often used with Microsoft Exchange is EDBUTIL.

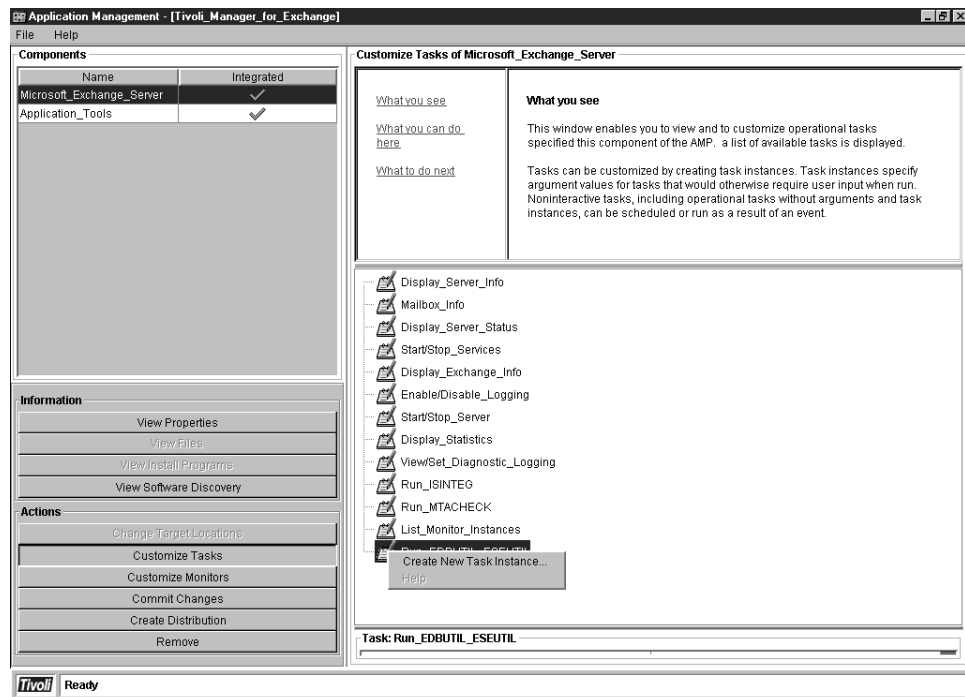


Figure 240. Create New Task Instance for Run\_EDBUTIL\_ESEUTIL

EDBUTIL is a tool that is used to examine the state of the Microsoft Exchange databases. It is similar to ISINTEG but EDBUTIL not only looks at the public and private stores but also at the Directory Service (DS) database. When you use the command-line utility you must make sure that the MExchangeIS service is stopped first. With Tivoli IT Director you don't have to remember that, since Tivoli IT Director stops the service for you and then restarts it when the EDBUTIL command is done.



Figure 241. Dialog for Run\_EDBUTIL\_ESEUTIL

In Figure 241 you see the most common command-line switches represented as radio buttons. Remember that when doing a defragmentation you must have the same amount of free space on your hard drive as is allocated to your database. A typical example might be when you lose power on your Microsoft Exchange; you would first run ISINTEG and then EDBUTIL to make sure everything is all right.

### 5.2.2 Create Management File Package

After you have customized all your tasks and created all of your monitors you are ready to execute the Commit Changes task. Since you made changes to the tasks and monitors the Distribution button is now active as shown in Figure 242 on page 171. That means that you can now create a package containing all the tasks and monitors you had created. This will add a new task under Software Distribution in your Tivoli IT Director console.

**Note:** Remember to give it a unique name since there is no logical checking within Tivoli IT Director for packages with the same name.



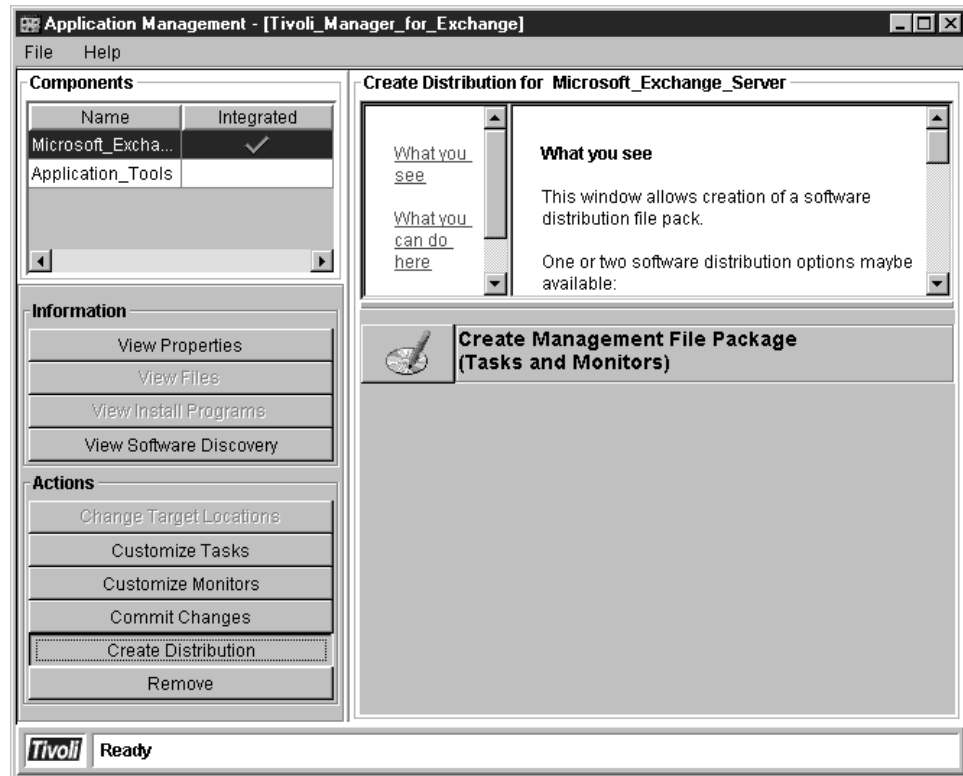


Figure 242. Create Management File Package

A management file package includes files required to manage the application on the client system. This includes files for operational tasks and monitors. To read more about management file packages see 1.5, “What is a Management File Package” on page 4. When you click on the button **Create Management File Package** the following window will pop up.

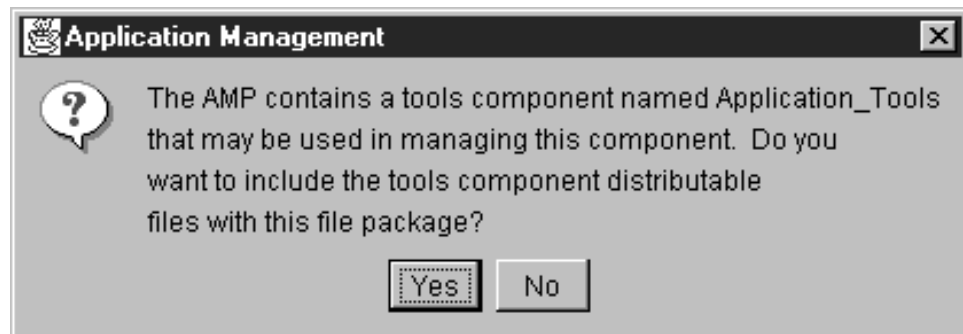


Figure 243. Application Management

Figure 243 shows you a prompt asking if you would like to bundle these files into this filepack. The Application Tools component should normally be bundled with the filepack so that you don't have to distribute multiple packages. The distributed files for the Microsoft Exchange AMP will be distributed to the directory c:\apptools. You should permit the tools to be used. In some cases you will notice in the Windows NT task list that utility functions are running. An example of this would be the *bash* shell.

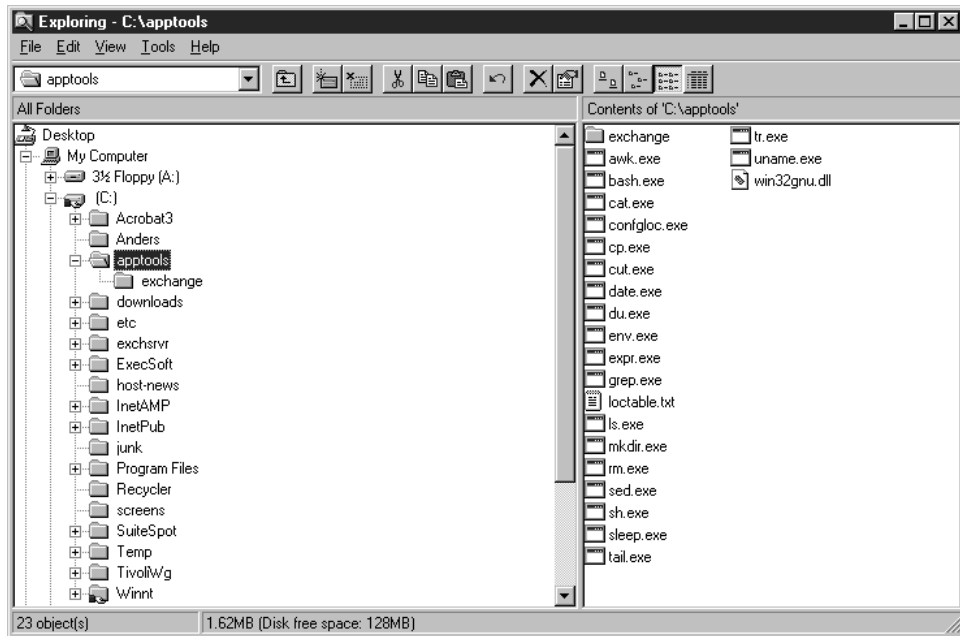


Figure 244. Example of Directory on a Managed Host

You can see the files that had been distributed to your remote system.

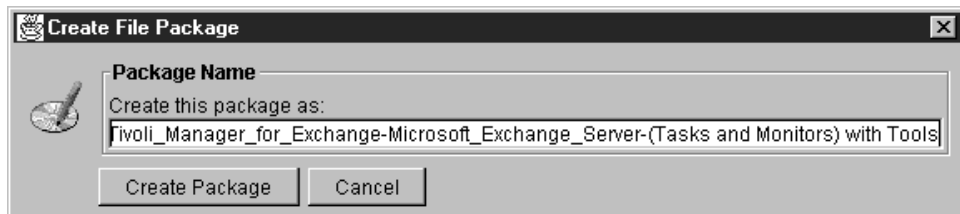


Figure 245. Create File Package

You have the option to rename the file package to a name that will better suit the environment. Remember that duplicate names can exist so it's a good idea to use a name that will indicate what this file package will provide. Click on **Create Package**.

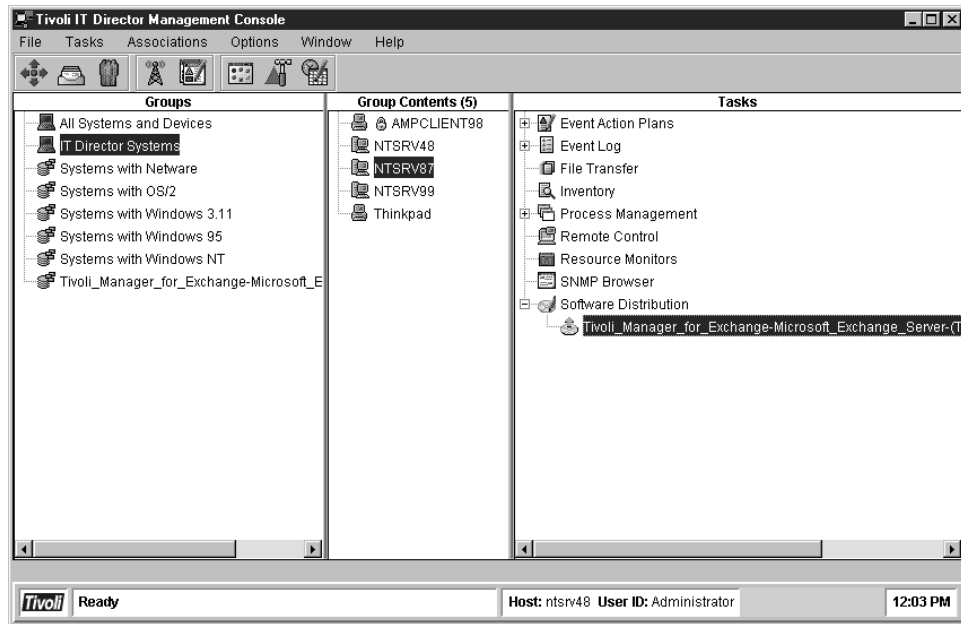


Figure 246. Tivoli IT Director Console

In Figure 246 you can see what the Tivoli IT Director console will look like after you have committed changes. Remember that for your Microsoft Exchange Servers to be part of the new group you have to do a new software inventory because it is only now that you have added the new AMP that Tivoli IT Director will be looking for hosts with the signature file named mad.exe.

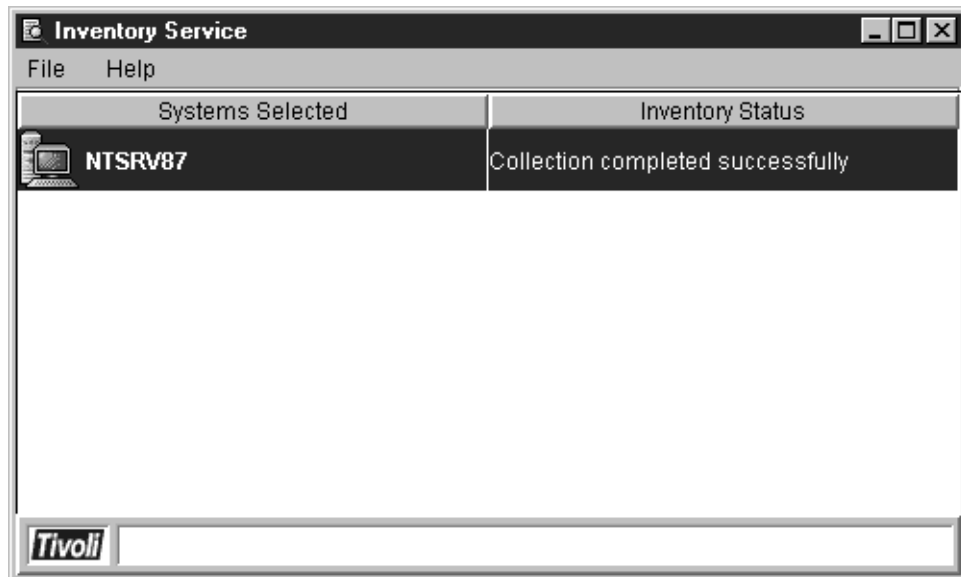


Figure 247. Perform Inventory Collection Dialog

Figure 247 shows the dialog that occurs when performing the inventory collection on your Microsoft Exchange Server. To view the inventory, right click on **NTSRV87** and choose **View Inventory**.

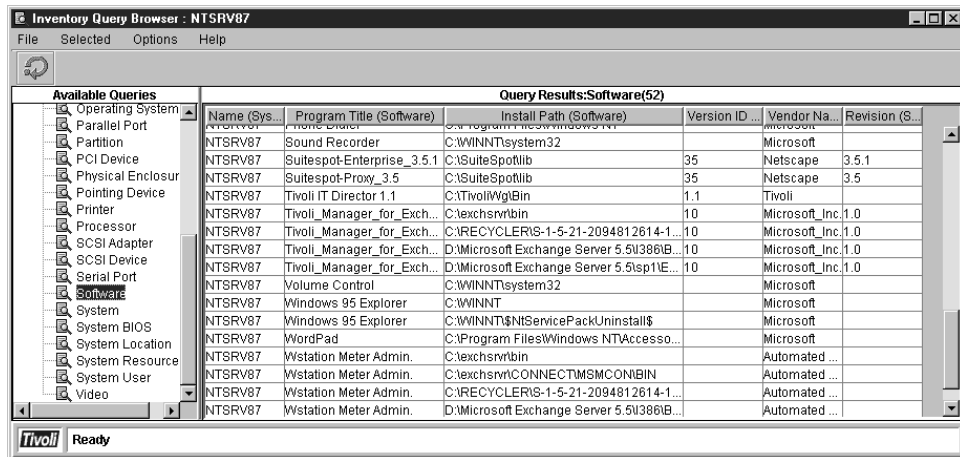


Figure 248. Example of Software Inventory

After you commit your changes you have to do a software inventory on the monitored system. After that we can open the Inventory Query Browser by right-clicking on our monitored host and then choosing **View Inventory** and the window shown in Figure 248 will appear. In your right pane you can see the different programs detected by Tivoli IT Director and among them you can see `Tivoli_Manager_for_Exchange`.

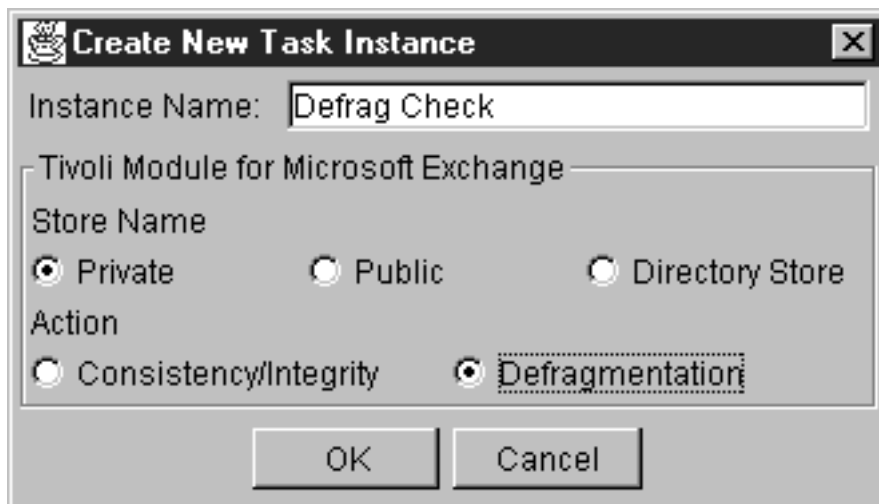


Figure 249. Create New Task Instance Example of Defrag Check

We also created a task that will use the command-line utility `EDBUTIL` to defragment the Microsoft Exchange database. Remember that this task will require the same amount of free disk space as the size of the database.

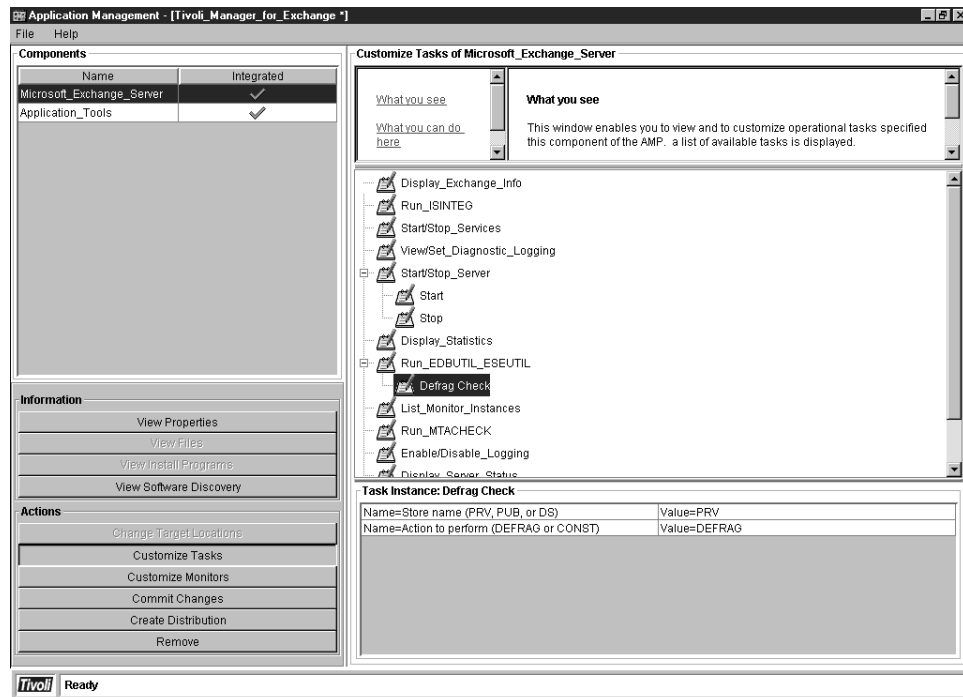


Figure 250. Example of New Task Instances

The newly created tasks are shown in the middle right-hand pane. The changes we made will not be implemented until we click on **Commit Changes**. After that the new tasks will automatically be distributed to all hosts with the Microsoft Exchange file management package installed.

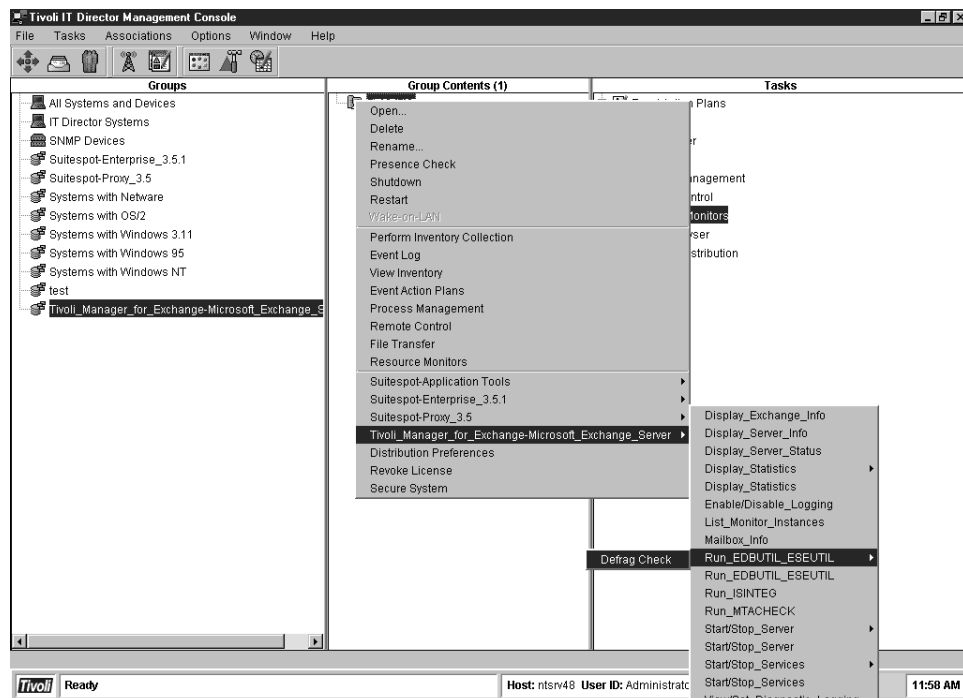


Figure 251. New Task Instances Successfully Committed

Figure 251 show the changes to the right-click menu for our Microsoft Exchange Server after the new tasks have been distributed.

## 5.2.3 Customize Monitors

In this section we show how to customize the Microsoft Exchange Server monitors that are provided with the AMP. If you click on **Customize Monitors** in the Application Manager console window you will see the following monitors.

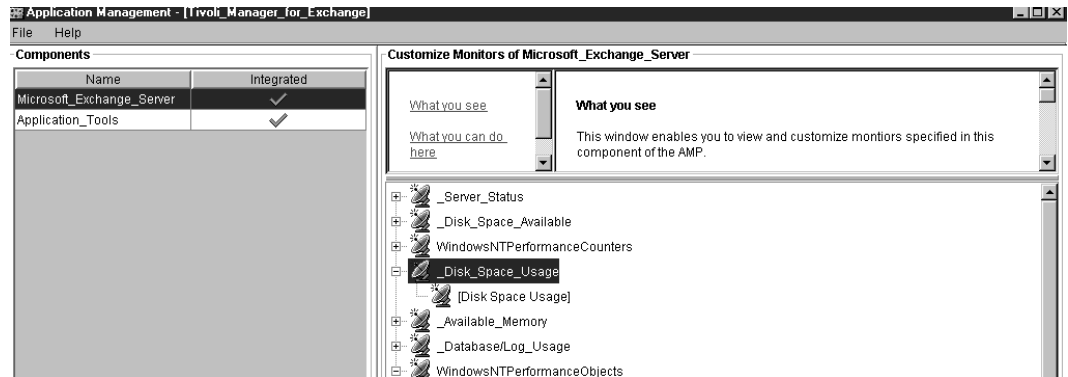


Figure 252. Customize Monitors

Three of the monitors we investigated are Disk Space Usage, Server Status and Available Memory.

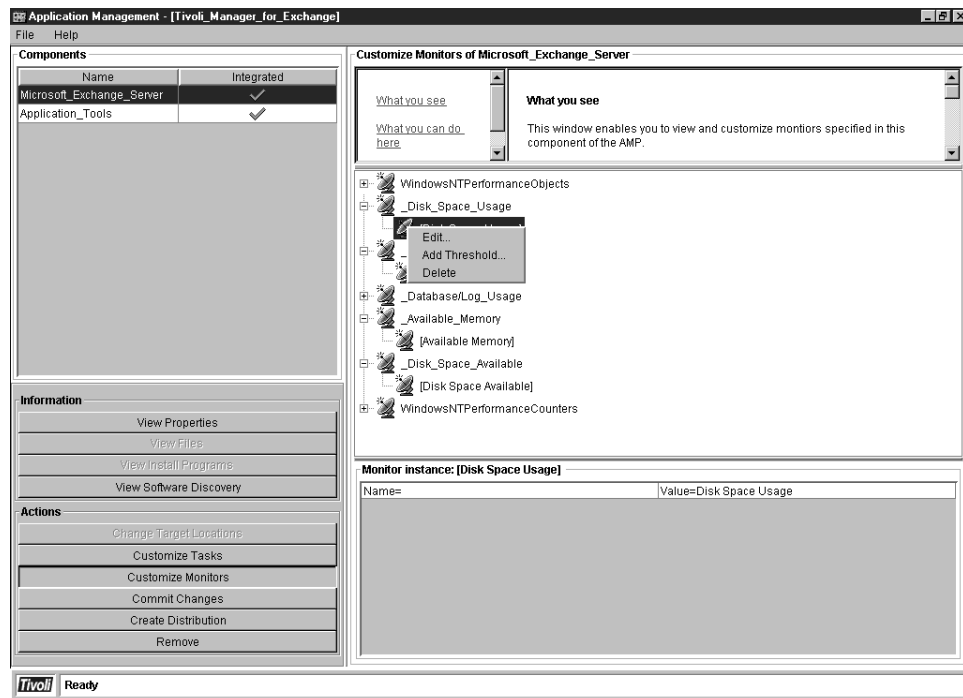


Figure 253. Add Monitor Example for Disk Space Usage

In Figure 253 we right clicked on the monitor **Disk Space Usage** and then chose **Add Threshold** to create a new monitor. That will bring up the New Threshold window. We filled in some values.

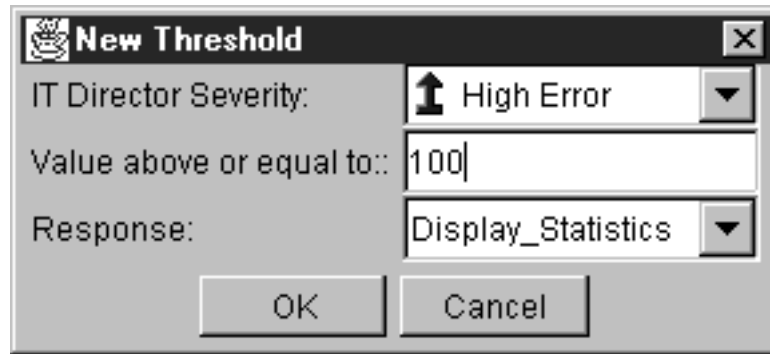


Figure 254. Threshold Example for Disk Space Usage

That will create a new monitor instance to check the database size and when it exceeds the value it will automatically launch one of the tasks that were created when you customized the tasks.

Since you probably do not have to check the size of the database every 30 seconds we show you another way of setting this up with Tivoli IT Director in the next few windows.

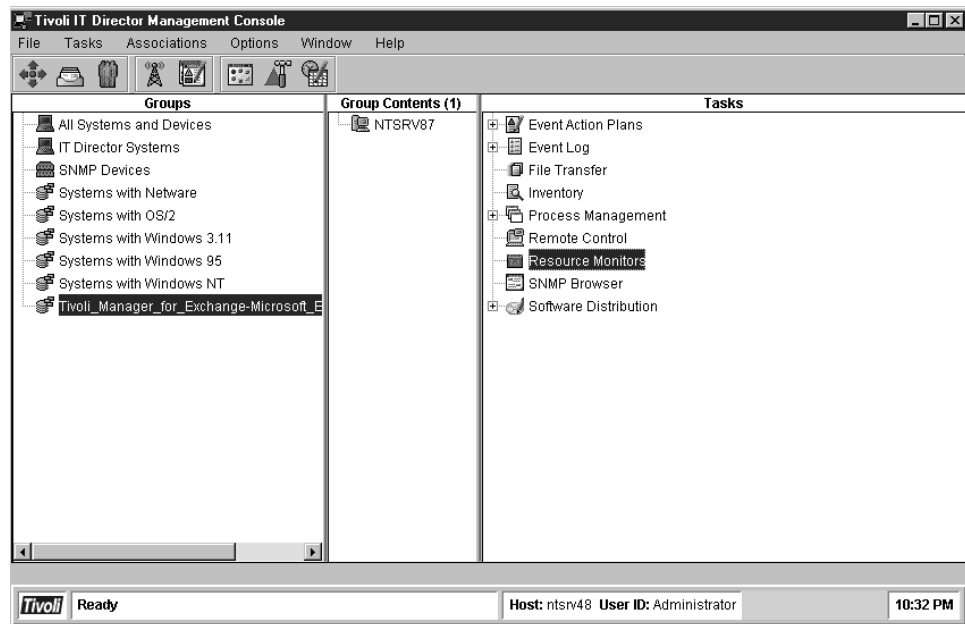


Figure 255. Tivoli IT Director Management Console

Figure 255 shows the resource monitors in the Tivoli IT Director management console. Drag and drop the task Resource Monitors to your Microsoft Exchange Server (NTSRV87) and the window shown in Figure 256 on page 178 will appear.

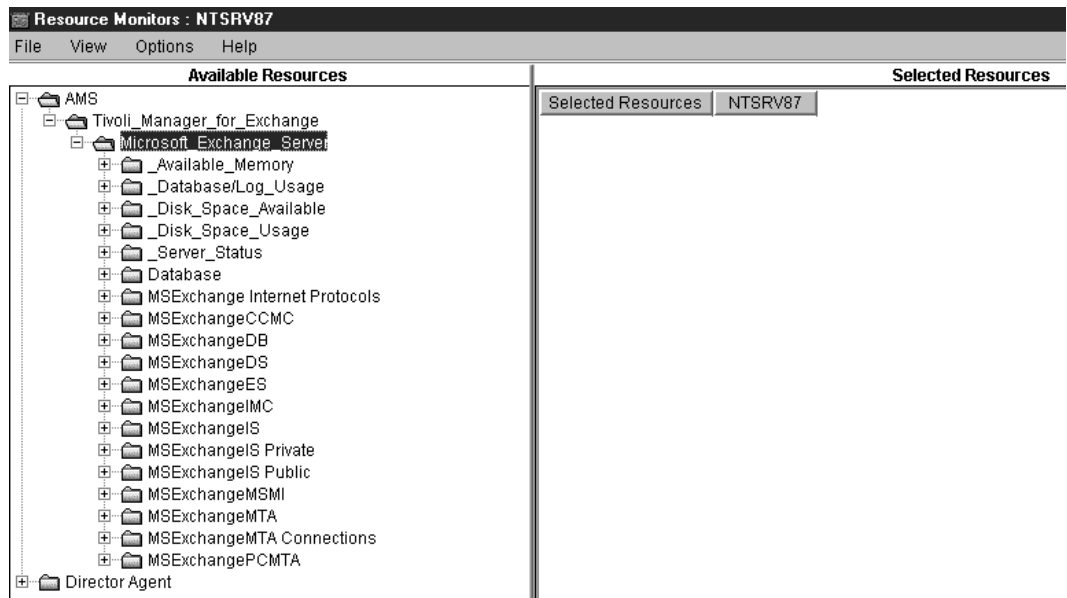


Figure 256. New Resource Monitors

You can see all the new resource monitors that are available after we installed the new AMP.

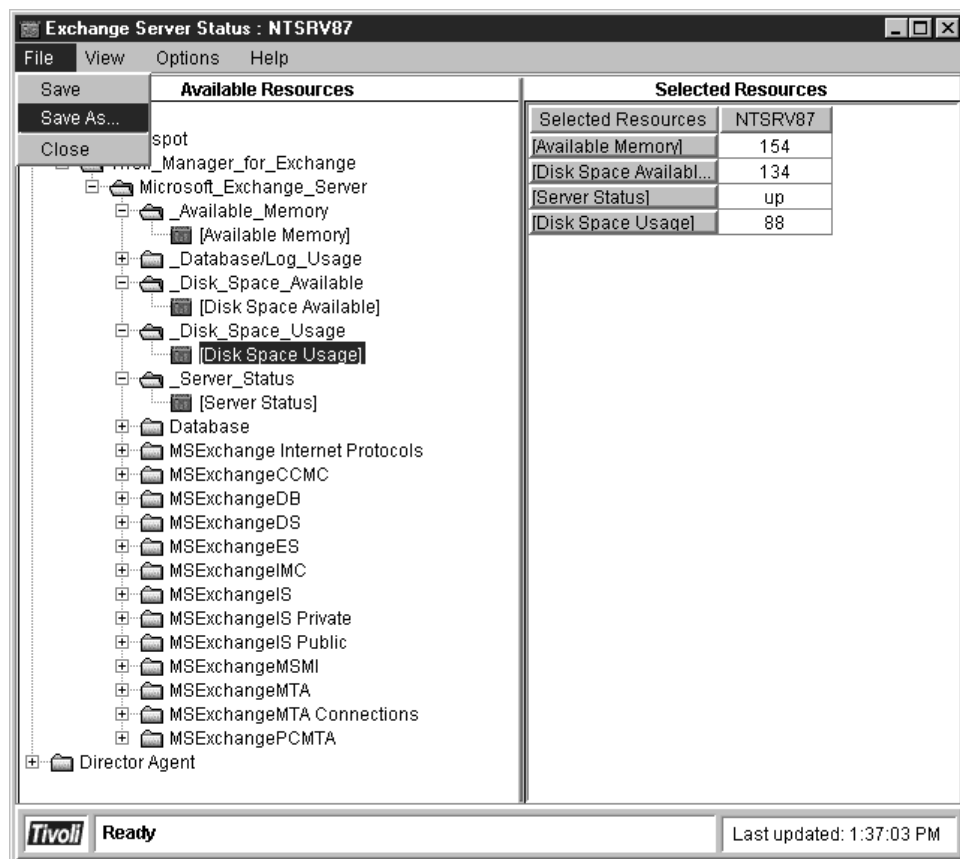


Figure 257. Resource Monitors Example

We selected some of the more important resources that need to be checked but take up a lot of resources when active. We saved this selection as a template so it



will be easy to check each day. The monitors will then only be active and use processor time on the monitored host as long as we have this window open. When we choose **File** and **Save As** the following window will pop up.

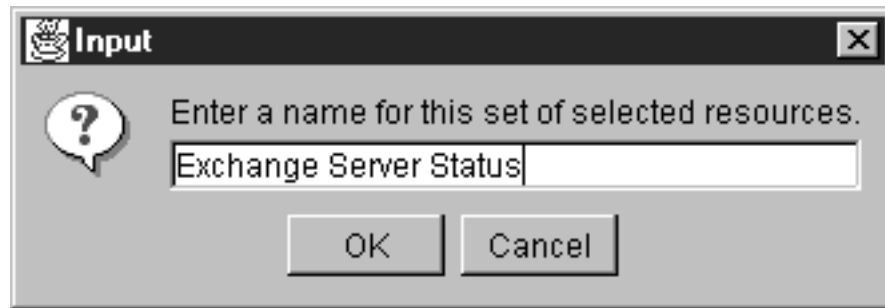


Figure 258. Name for New Resource Monitors

You should name the template something that is easy to remember, as shown in Figure 258.

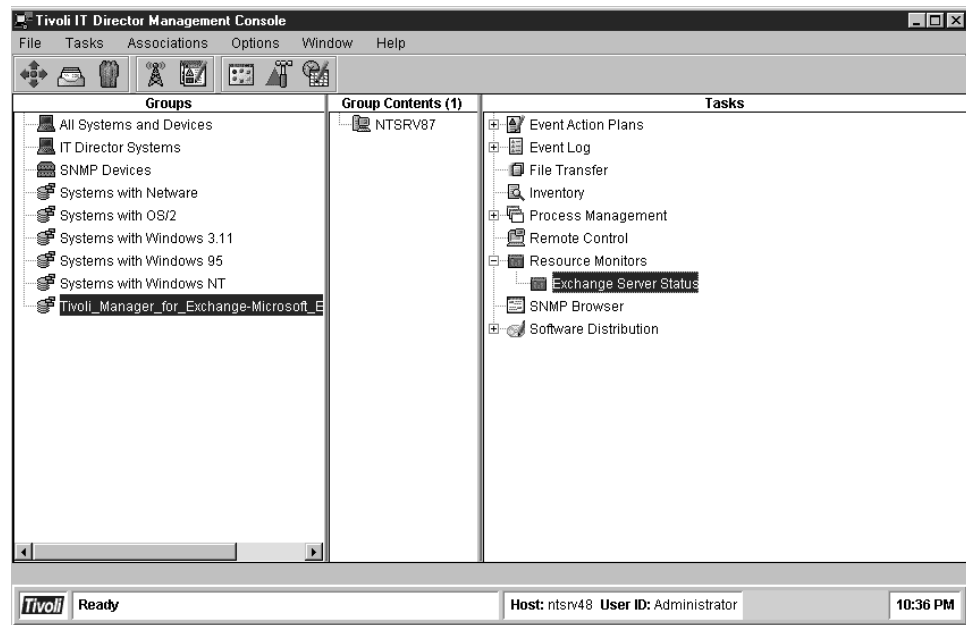


Figure 259. Tivoli IT Director Management Console

In Figure 259 you can see the new template as a subtask of Resource Monitors which can be easily launched by just dragging and dropping the task onto a managed host.

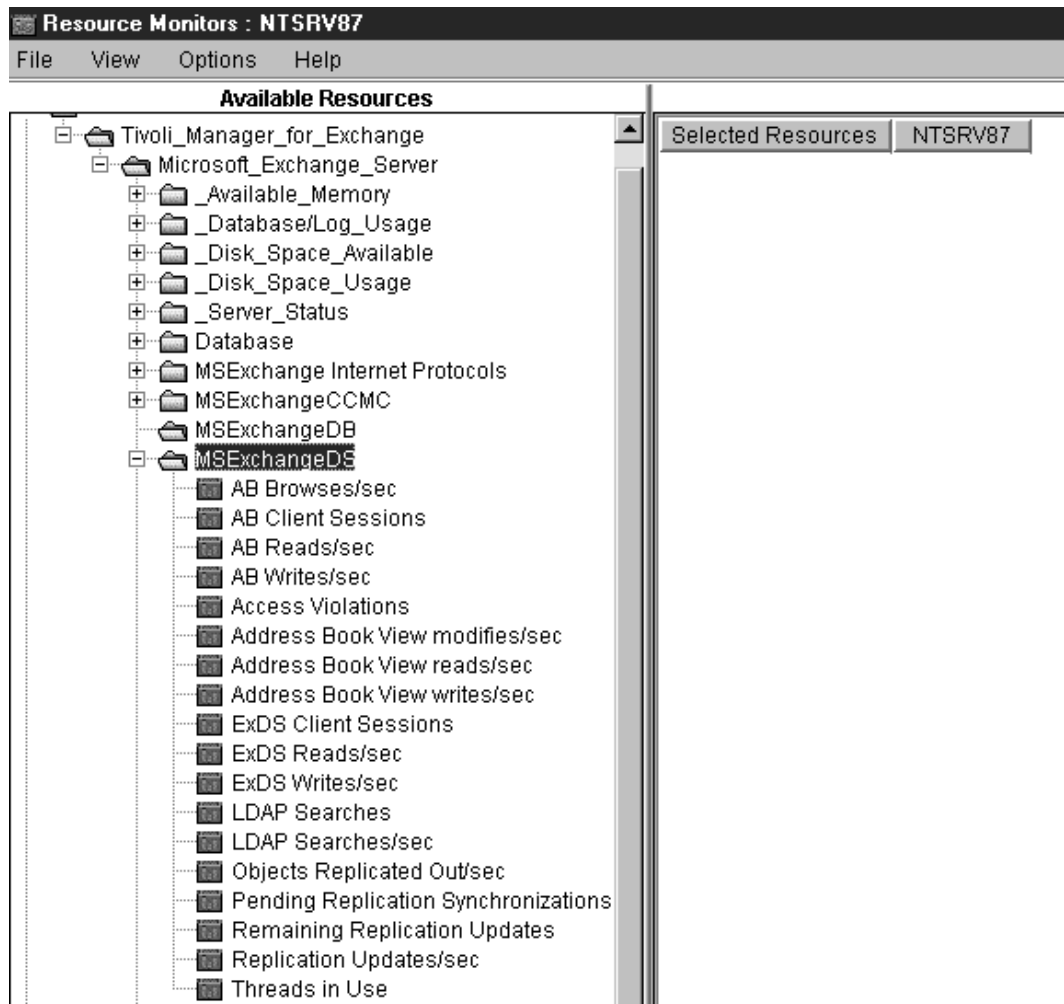


Figure 260. Resource Monitors - MExchangeDS

In Figure 260 you can see a few of the other monitors that become available after installing the Microsoft Exchange AMP. For example, if users were complaining about performance when looking up addresses in the global address book you could start by monitoring AB Browsers/sec or AB Reads/sec. Another useful monitor if you have performance problems might be Threads in Use.

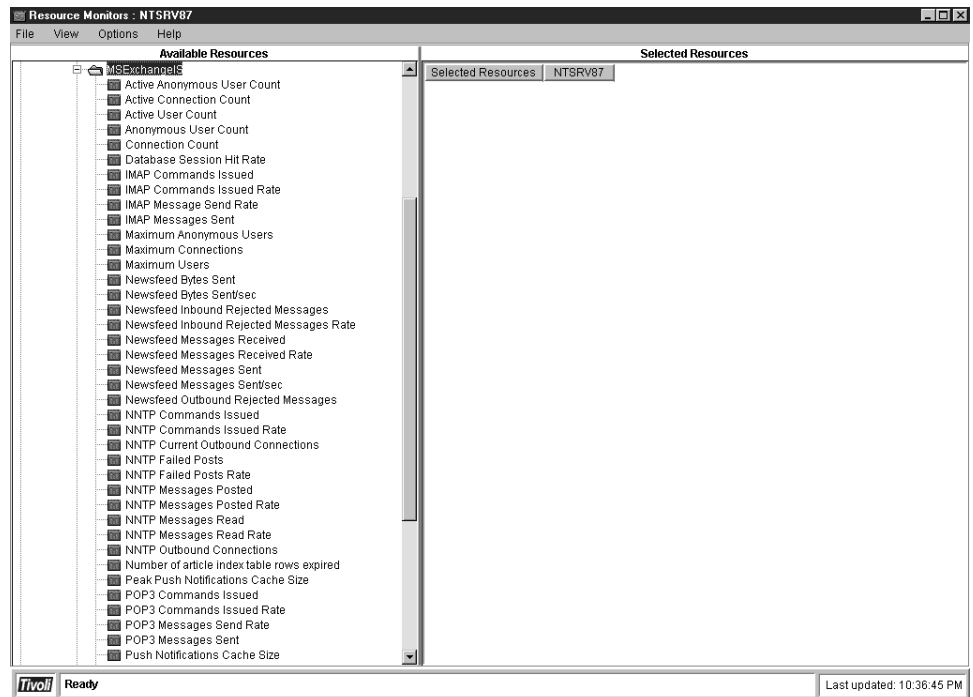


Figure 261. Resource Monitors - MSExchangeIS

We expanded the view for monitors in relation to MSExchangeIS. Most of these monitors are equally useful but a couple of them should be mentioned. The Active User Count and Maximum Users are good to keep track of. The monitors are related to MSExchangeIS and use very little resources on your monitored host.

Another example of when you would want to use a monitor relates to security. If you didn't allow any POP3 connections in your environment you could set up a monitor to check if such a connection occurs. If one was discovered you could then schedule an action to be taken. The action might be to shut down the interface or report the intrusion to a security administrator.

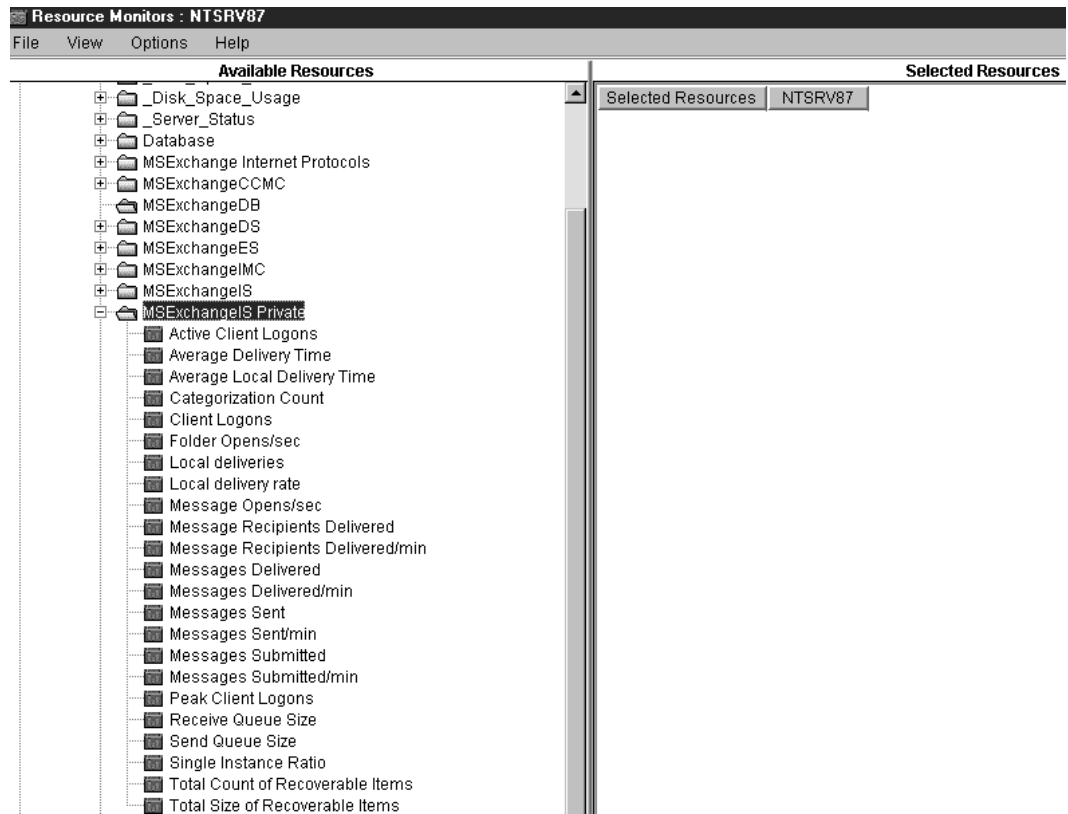


Figure 262. Resource Monitors - MExchangeIS Private

Figure 262 shows the monitors related to MExchangeIS Private. One of the more important monitors to keep track of is *Send Queue Size*. This is the number of messages that are sent locally, for example, within your mail system and have not yet been delivered.

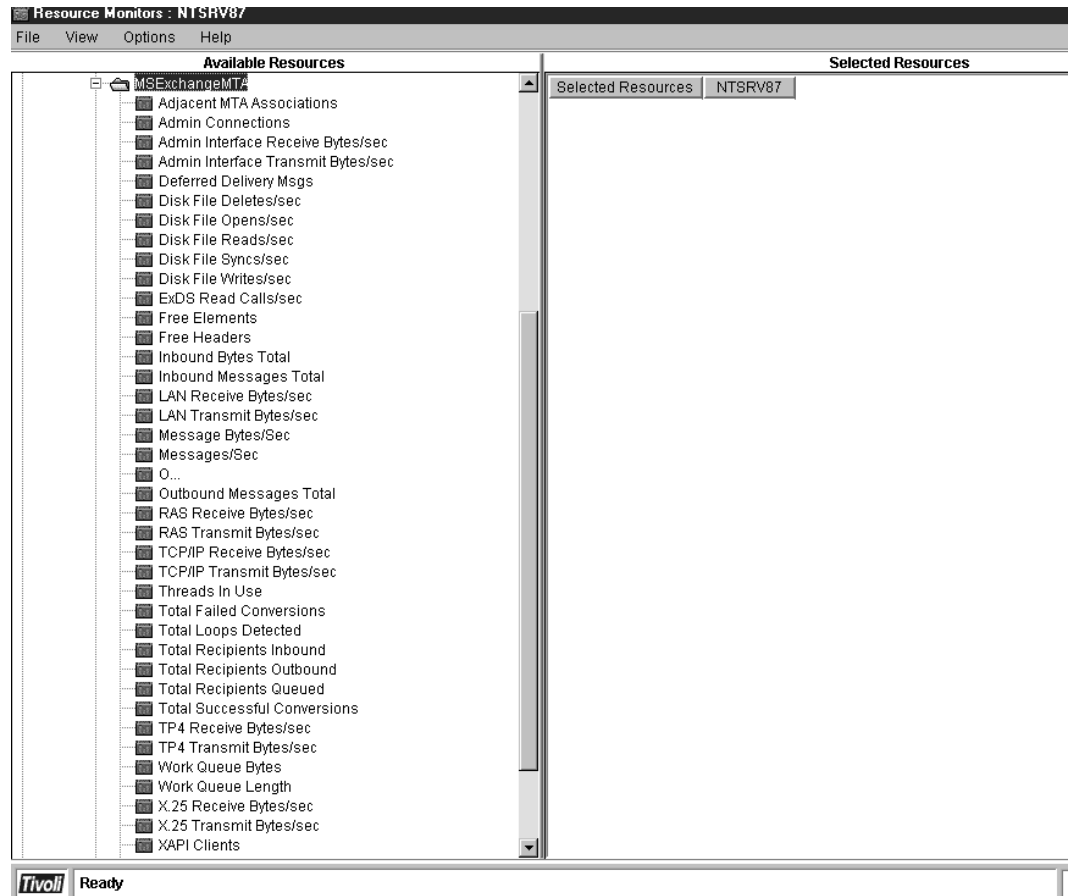


Figure 263. Resource Monitors - MSExchangeMTA

In Figure 263 we expanded the view for all the monitors related to MSExchangeMTA. You can configure them to keep track of your inbound and outbound traffic depending on which network protocols you are using and which connectors you have installed on your system.

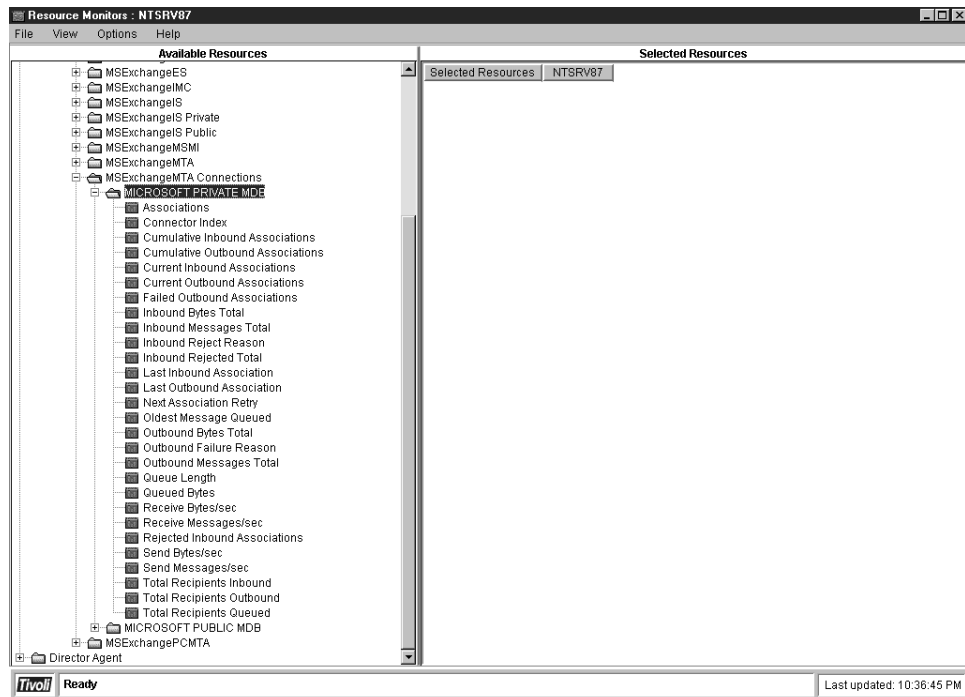


Figure 264. Resource Monitors - MExchangeMTA Connections

In Figure 264 we expanded the view for all the monitors related to MExchangeMTA Connectors. These are all monitors checking traffic into and out of your Microsoft Exchange Server. One of the most important monitors to keep an eye on is the Queue Length. If this number starts to increase that means one of your connectors is not working.

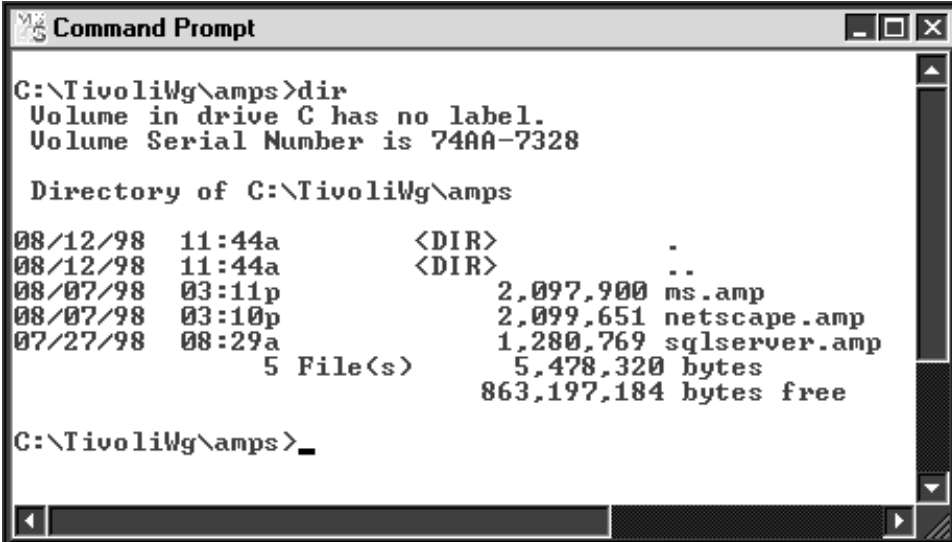
## Chapter 6. SQL Applications Management

This chapter provides examples of the SQL-related applications management functions that are implemented for use with Tivoli IT Director. The AMP is delivered as part of the Tivoli Manager for Microsoft SQL Server, IT Director Edition.

### 6.1 Installing the SQL AMP

Before you can use the SQL application management function in Tivoli IT Director's application manager, you must install the AMP. The AMP does not ship with Tivoli IT Director and thus will not be readily available for you to install and use. The AMP must be purchased separately and then installed on your Tivoli IT Director server.

Once you have the AMP file, you can copy it onto your server in the `\TivoliWg\amps` directory. The AMP is easily identifiable by the `.amp` extension. The `\TivoliWg\amps` directory is the default directory for the AMPs.



```
Command Prompt
C:\TivoliWg\amps>dir
Volume in drive C has no label.
Volume Serial Number is 74AA-7328

Directory of C:\TivoliWg\amps

08/12/98  11:44a      <DIR>          .
08/12/98  11:44a      <DIR>          ..
08/07/98  03:11p           2,097,900  ms.amp
08/07/98  03:10p           2,099,651  netscape.amp
07/27/98  08:29a           1,280,769  sqlserver.amp
                    5 File(s)          5,478,320 bytes
                    863,197,184 bytes free

C:\TivoliWg\amps>
```

Figure 265. The AMP is Placed in `\TivoliWg\amps`

Figure 265, shows the `sqlserver.amp` file alongside the default Tivoli IT Director AMPs. The AMP can now be installed.

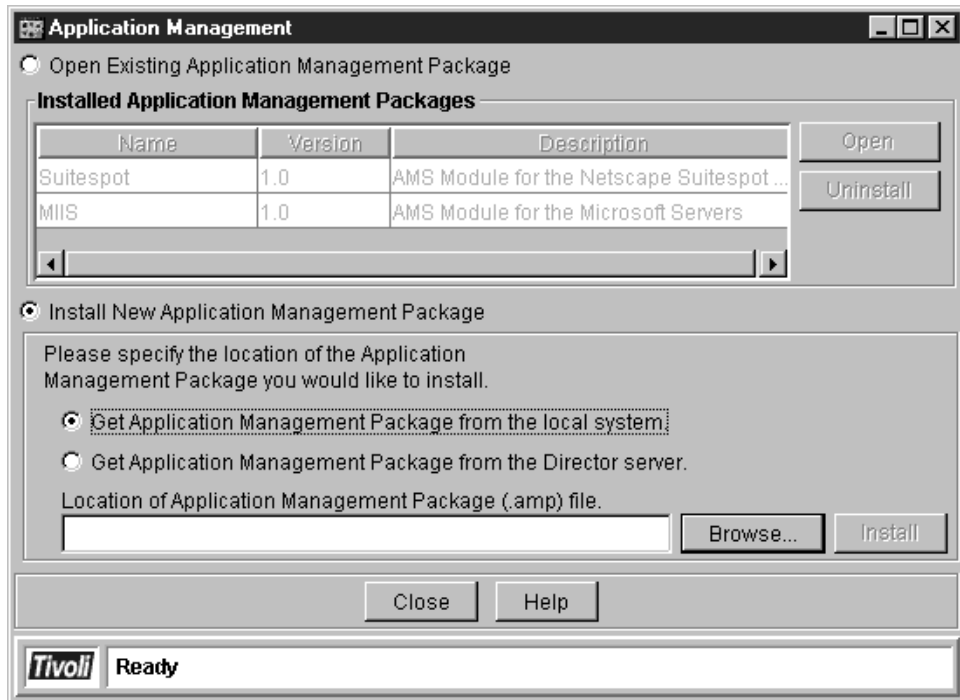


Figure 266. The AMP Must be Imported into the Application Manager

You have two options for installing the new AMP. You can retrieve the AMP from the local system or from the Tivoli IT Director server. It doesn't matter where the physical location of the AMP is. Click on **Browse** to search for the AMP you wish to install or just type in the fully qualified name.

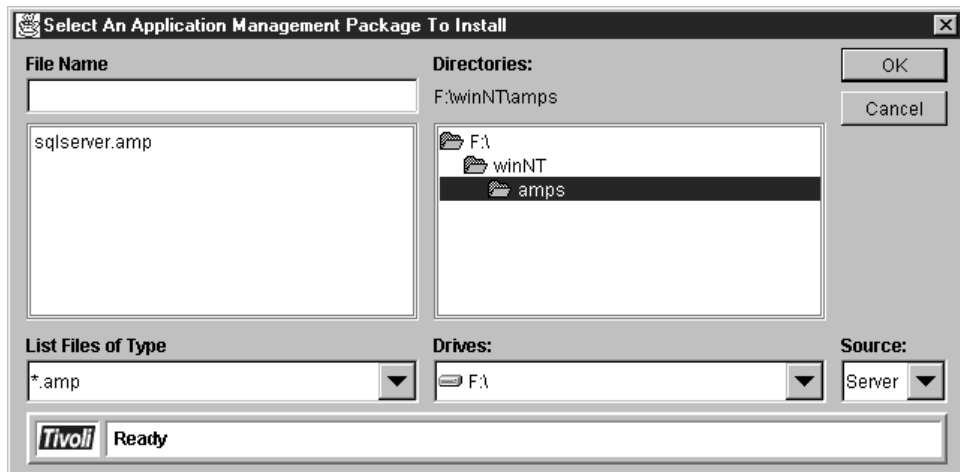


Figure 267. Locate the AMP on a Network Drive

Figure 267 shows the AMP located on a network drive mapped as F:\ drive. In Figure 268 on page 187 the AMP is on the local drive of the server.



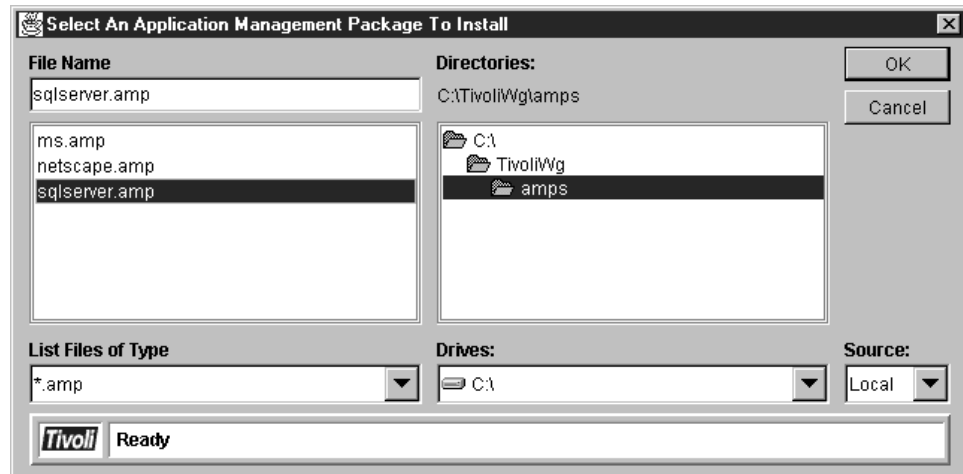


Figure 268. Locate the AMP to be Installed

Once the AMP has been identified and selected (see Figure 268) then click on **OK**. You will see a window similar to Figure 269. The path of the AMP that you will install from is displayed in the Location of Application Management Package field. Click on **Install**.

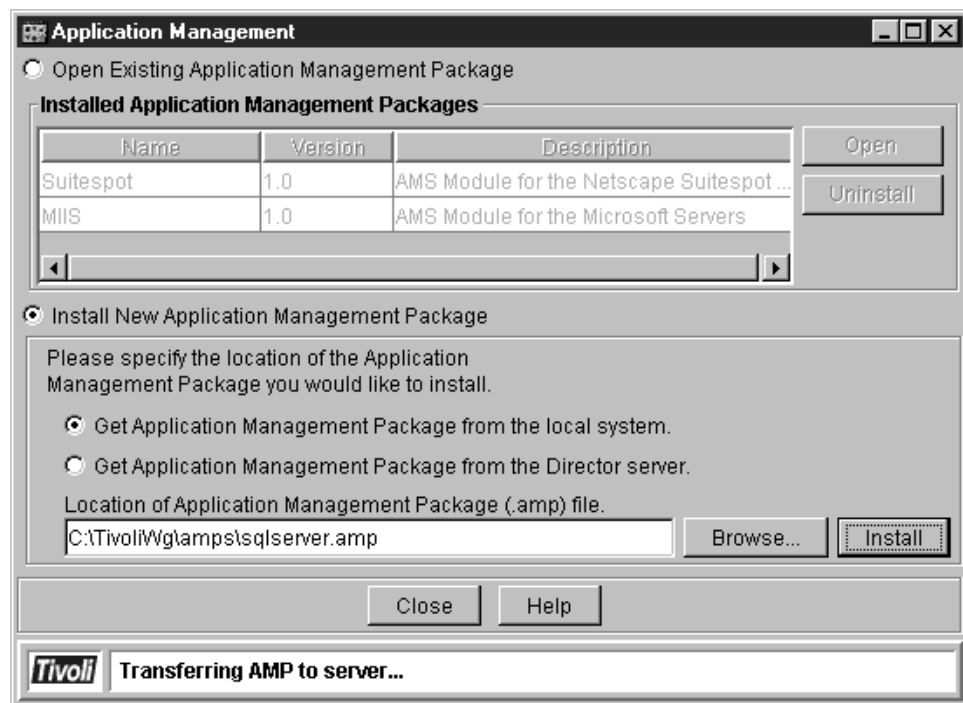


Figure 269. The AMP is Transferred to the Server

Once you have selected to install the AMP, the AMP is *read* by the server, as shown in the following window.



Figure 270. The Server Reads the AMP

The AMP is loaded into the TivoliWG\amsdata directory. Once the AMP is loaded, you can begin to customize your AMP to work with SQL Server.

**Note:** The amsdata directory is a hidden directory. You can still use Windows NT Explorer or the dir command to view it, but if you use the dir command you will have to explicitly enter the full directory path to see its contents.

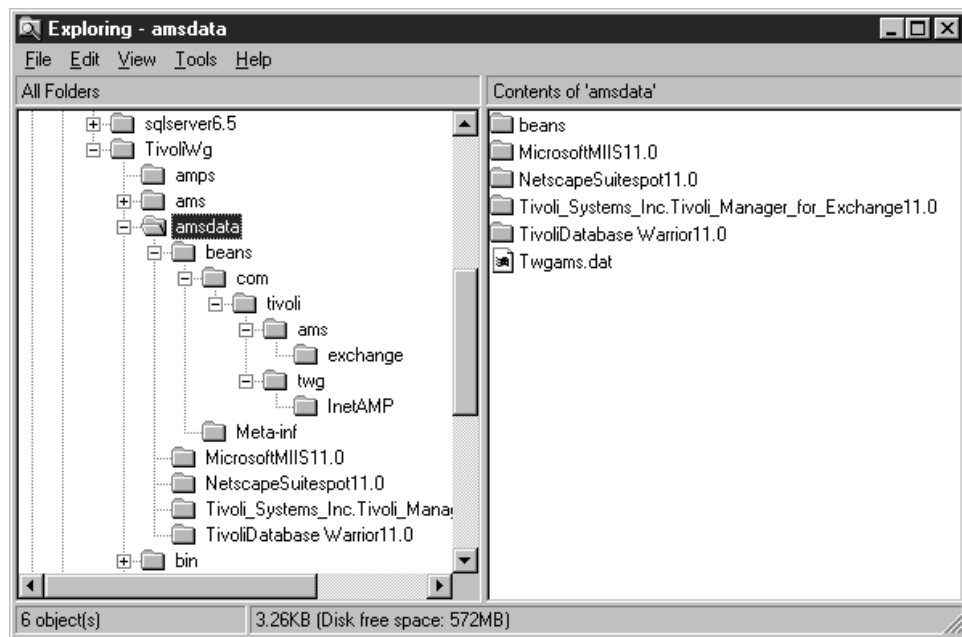


Figure 271. Amsdata

### 6.1.1 Uninstalling the AMP

If a new AMP is distributed you have to remove the old one before you can install the new one. Doing so will remove all of the customization to the tasks and monitors for that AMP.

To remove the SQL AMP (to prepare to upgrade it), click on **Database Warrior** and then click on **Uninstall**.

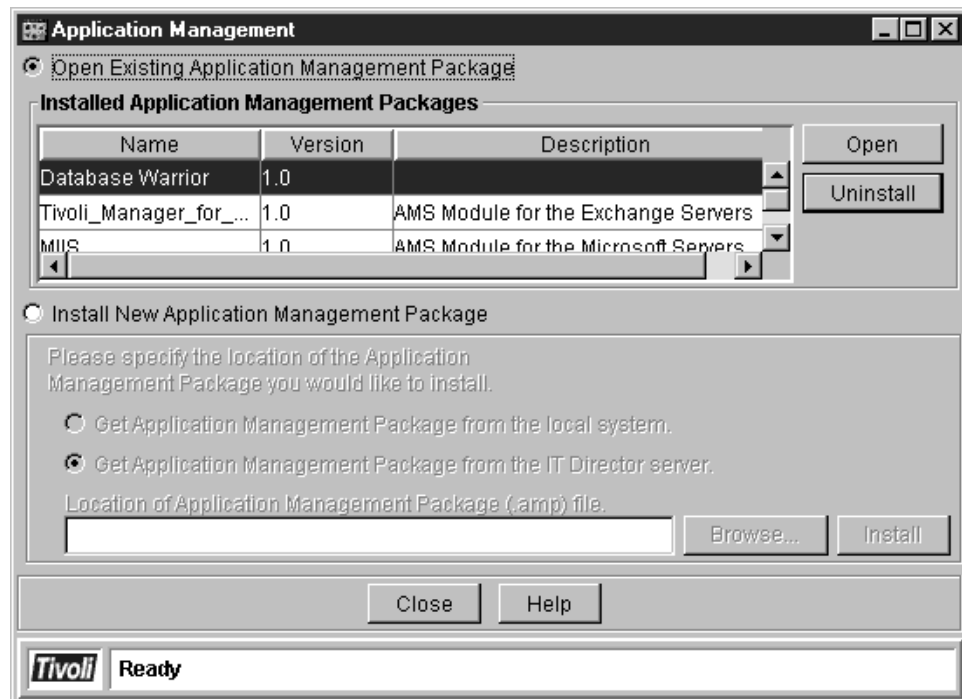


Figure 272. Uninstall AMP

You will get a warning message about the consequences of removing the AMP. Click on **OK**.

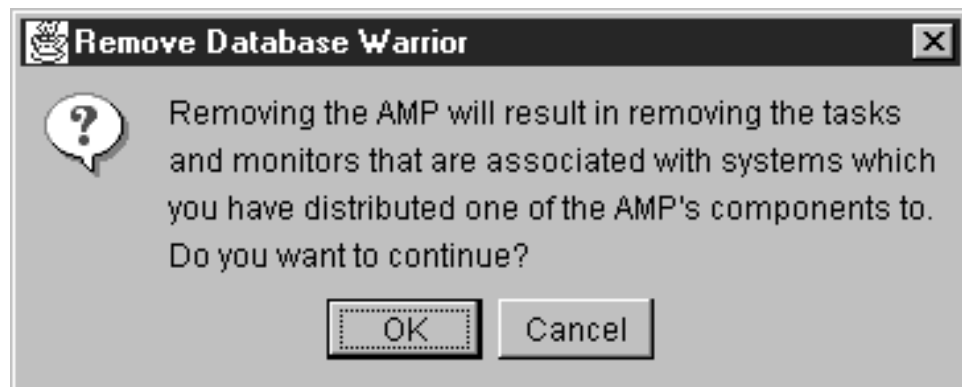


Figure 273. Verify Removal of AMP

After it is removed it is OK to load your new AMP.

## 6.2 Viewing the Properties of the SQL AMP

Once the AMP has been read into the server, you are presented with a window similar to the following.

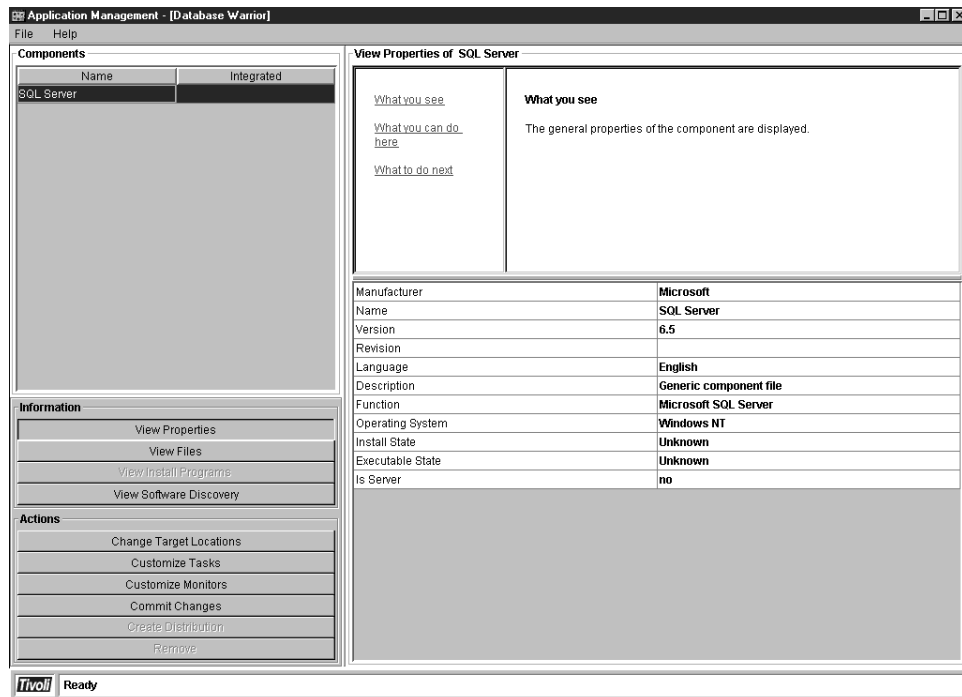


Figure 274. View Properties of SQL Server

The general properties of the AMP are displayed in the lower right pane of the window when the View Properties button is selected. As you can see, Microsoft SQL Server is listed in the Function field.

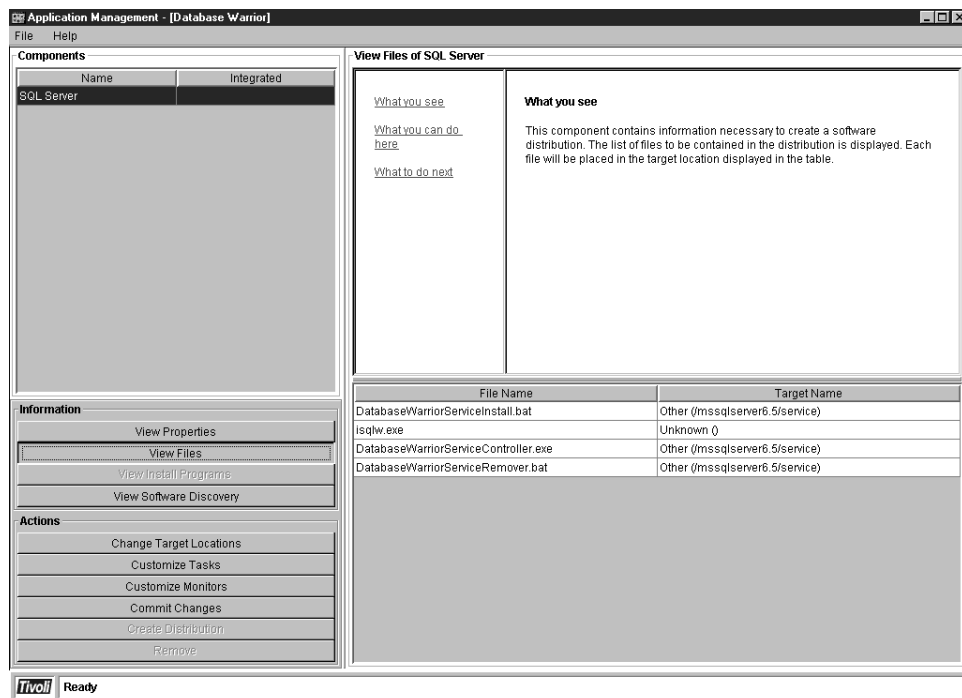


Figure 275. View Files for SQL Server AMP

Similarly, the View Files button shows the DatabaseWarriorServiceController.exe file which will be copied to the host machine when the file distribution takes place.

The purpose of the service is to interface with SQL Server, the NT Event Log and the NT Registry. It uses named pipes to communicate.

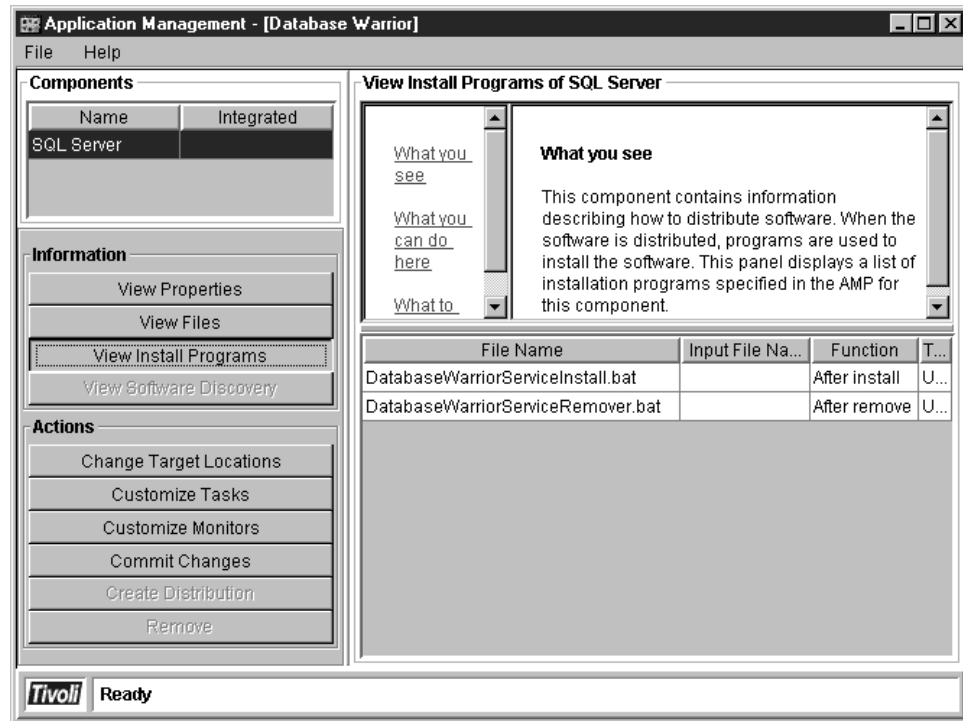


Figure 276. View Install Programs for SQL Server AMP

Selecting the **View install Programs** button displays the files that will be run on the target system after software distribution. DatabaseWarriorServiceInstall.bat will be executed after software distribution to install the monitors and tasks that you have selected onto the target machine. The other file, DatabaseWarriorServiceRemover.bat, is executed should you decide to uninstall the SQL AMP at a later stage.

So far we have looked at the Information properties of the SQL AMP. The information panel of the Application Management window provides information only. There is nothing to configure.

### 6.3 Specifying Actions for the SQL AMP

If we move to the Actions panel, we can start configuring our SQL AMP.

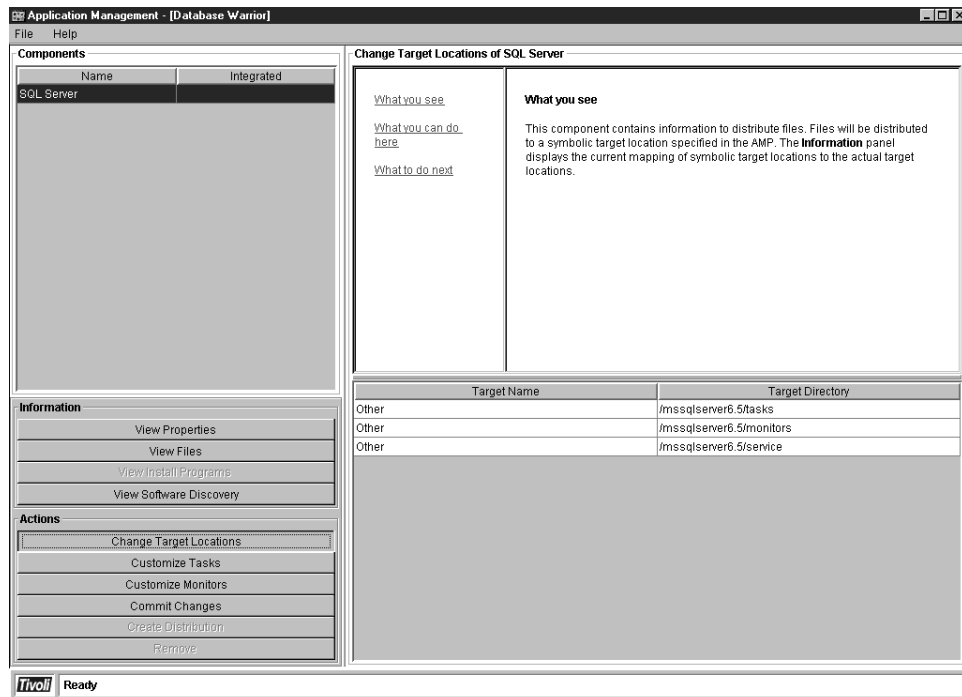


Figure 277. Changing the Target Locations

Clicking on the **Change Target Locations** button will allow you to change the default path for the files to be installed in. The Target Directory specified in the lower right panel does not appear to be an actual directory. The Target directory is said to be a *symbolic target location*. We do not suggest changing the default location unless you have a specific need for the software to be installed somewhere else on the target system.

## 6.4 Configuring the Tasks for the SQL AMP

There are hundreds of tasks that can be performed on an SQL server. In the Tivoli IT Director SQL AMP, the tasks used most often and the critical tasks that need to be performed are built into the applications management function. There is a lot more that you as an administrator or DBA can customize for the SQL AMP than was provided in the initial IIS or Netscape AMPs shown in Chapter 4, "IIS Applications Management" on page 93 and Chapter 3, "Netscape Applications Management" on page 55.

Figure 278 on page 193 shows the tasks that can be customized for use with your SQL server. We discuss each individually and once the software distribution has taken place to the SQL server we also show working examples of some of the tasks.

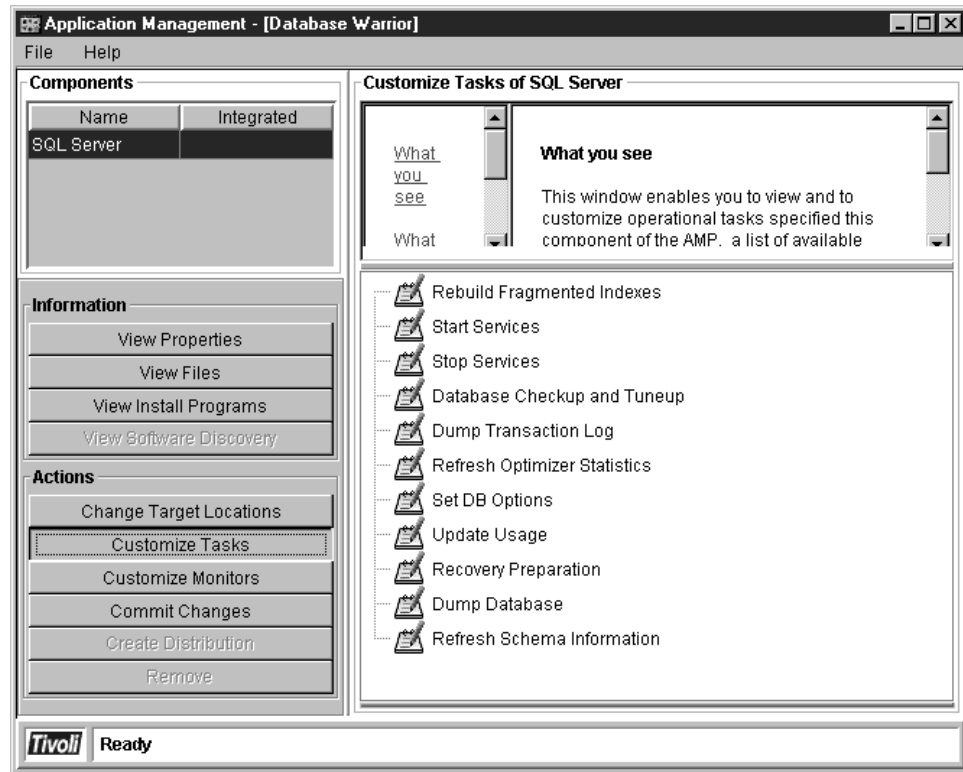
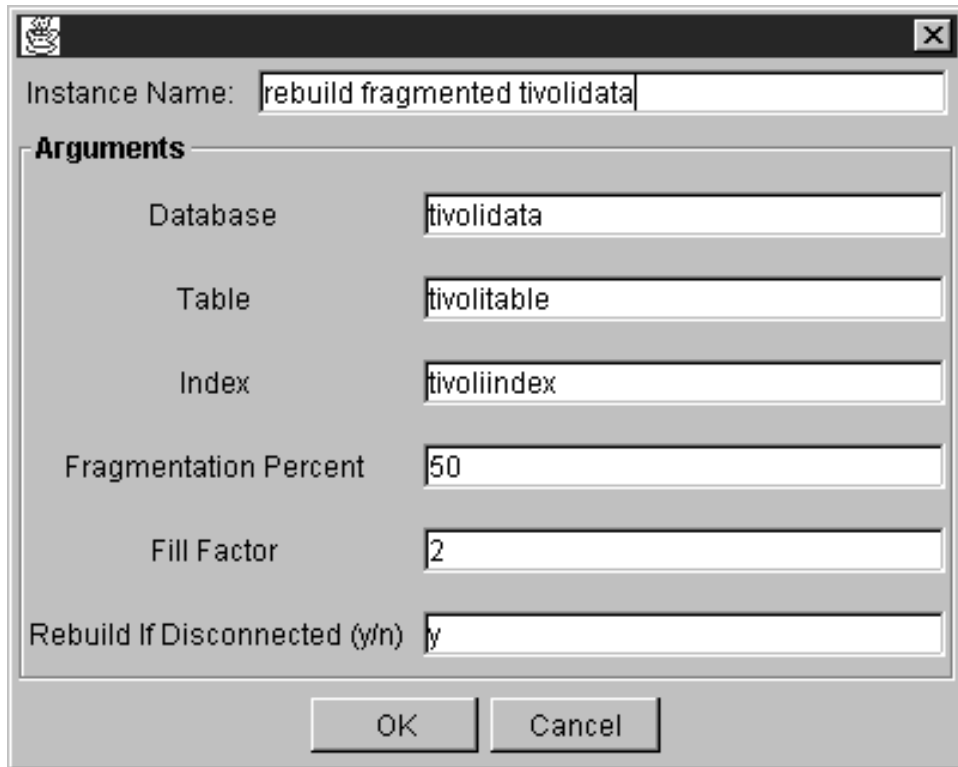


Figure 278. Customizing the Tasks of SQL Server

### 6.4.1 Rebuild Fragmented Indexes

The first task that we worked with is to *Rebuild Fragmented Indexes*. Highlight this option and right click with the mouse. You will see a window similar to the following one.



The dialog box is titled "Rebuild Fragmented Indexes" and contains the following fields:

- Instance Name: rebuild fragmented tivolidata
- Database: tivolidata
- Table: tivolitable
- Index: tivoliindex
- Fragmentation Percent: 50
- Fill Factor: 2
- Rebuild If Disconnected (y/n): y

Buttons: OK, Cancel

Figure 279. Rebuild Fragmented Indexes Dialog Box

With continued usage, a database index becomes fragmented over time. The more read, write and delete activity that goes on, the more fragmented the index becomes. The way you would normally defragment a table is by *dropping* and re-creating the clustered index on the table. The SQL AMP makes it a lot easier for you to defragment an SQL index that has become fragmented.

The arguments that can be entered into the Rebuild Fragmented indexes fields are as follows.

- *Database* - The name of the database on which the index that you want to defragment resides.
- *Table* - The name of the table residing on the database which you have specified.
- *Index* - The name of the index for the table of the database that you have specified.
- *Fragmentation percent* - Defragmentation will take place on the index, if the fragmentation is above or equal to this value.
- *Fill factor* - This value is set when the index is created in SQL server manager (see Figure 280 on page 195). The value that can be entered here is a value between 0 and 100, with 0 being the default. Fill factor has to do with the ratio of density for indexed pages. Consult your SQL documentation for a more thorough explanation.



Key	Identity	Column Name	Datatype	Size	Nulls	Default
		<b>f_name</b>	varchar	255	✓	
		l_name	varchar	255	✓	
		card_id	numeric	18,0	✓	
		company	varchar	255	✓	

Primary Key / Identity    Foreign Keys    Unique Constraints    Check Constraints

Primary Key

#	Column Name
1	f_name

Type: ☒ Clustered ☐ Non - Clustered

Fill Factor: 0

Identity Column: (none)    Seed Value:    Increment:    Add    Remove

Figure 280. Fill Factor Setting for SQL Index

- *Rebuild if disconnected Y/N* - Answer y to this question if you want the index to be rebuilt only when the database has been disconnected.

## 6.4.2 Start Services

Figure 281 on page 196 shows the dialog box for configuring the Start Services task. Should your SQL server be stopped, not set to autostart start on boot, or you have stopped the SQL server, you will be able to the server by configuring this application management task.

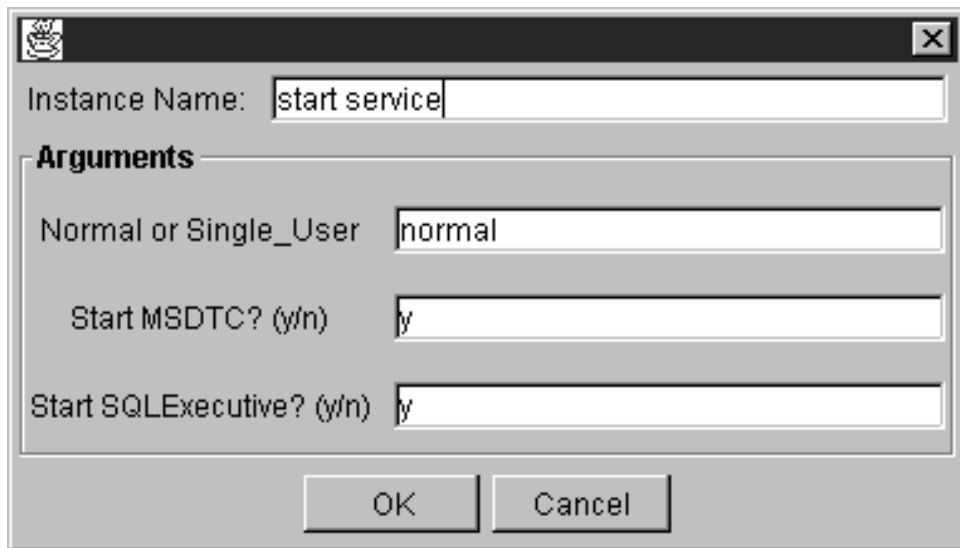


Figure 281. Start Services Dialog Box

The Start Services dialog box has the following options that can be set:

- *Instance Name* - We suggest that you name the task appropriately for the function that the task will be performing. In Figure 281 we named the task *start service* since we selected all the start options. Remember that you can have multiple instances of the same task. For example, you could have one task called *start MSDTC Only* and another task called *start SQL Executive only*. Each task when executed separately will issue the commands that you have selected and thus you need to know which task instance performs which function.
- *Normal or Single\_User* - The default option to select is normal operation. Select *single\_user* if the database should be available only to one user at a time. Only a single user can access the data at any time.
- *Start MSDTC* - MSDTC is the 32-bit Distributed Transaction Coordinator from Microsoft. MSDTC is an OLE-based transaction manager that coordinates transactions that occur to the database. MSDTC's function is to trace all transactions that are executed and to see that they complete successfully. Any transaction that is not completed successfully will be rolled back and not written to the database. MSDTC is usually invoked from the SQL server manager as shown in the following window.

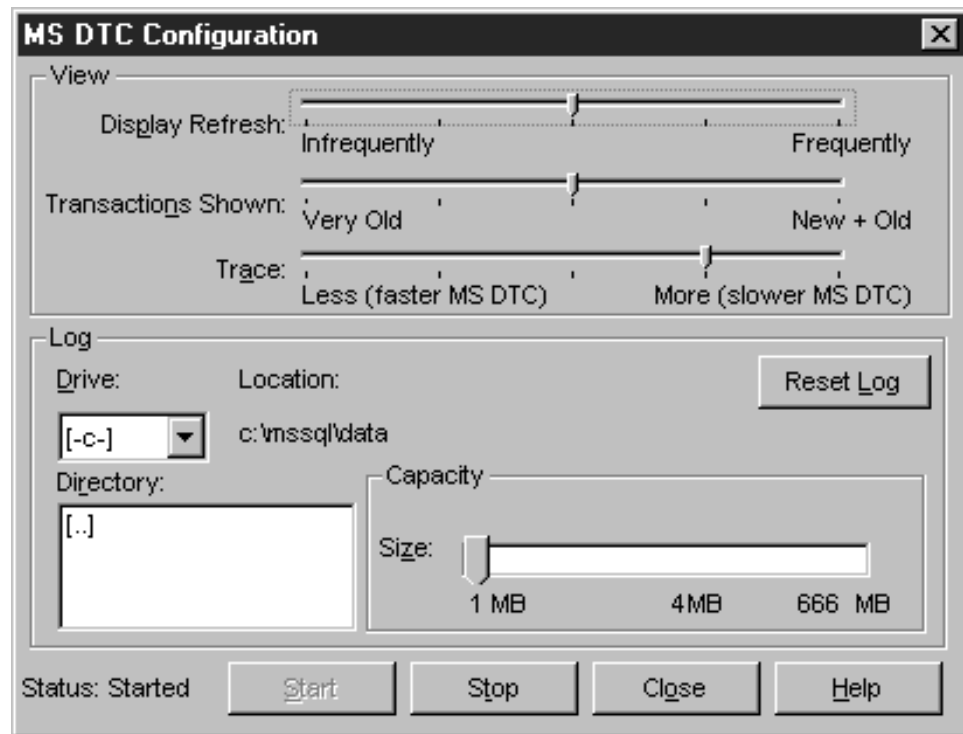


Figure 282. MSDTC as Viewed from SQL Enterprise Manager

- **Start SQL Executive** - Some of the functions of the SQL executive are to monitor the SQL server, allowing the server to be restarted should it go down unexpectedly. The SQL executive also has the ability to start the SQL mail service when the executive starts. The SQL executive is started by default when the SQL server starts, but should it be stopped for any reason, the start services task can be used to start it up again.

### 6.4.3 Stop Services

Figure 283 on page 198 shows the dialog box for the stopping of services running on the SQL server.



Figure 283. Stop Services Dialog Box

The stop services task can also be configured with multiple instances with different messages and shutdown functions.

- *Instance Name* - The name of the task should explain the function the task will perform.
- *Message* - Type a message that the users of the SQL server will receive before the server is stopped or paused.
- *SHUTDOWN or STOP* - Type the option that you want. If you type SHUTDOWN, the Windows NT Server on which the SQL server is running will be shut down. Otherwise, just the SQL service will be stopped.
- *WAIT or NO\_WAIT* - Should the server wait for all users to log out of the database first before shutting down or stopping, or execute the shutdown immediately?
- *Pause* - The server will be paused for the amount of time you have specified.

Not all the options on every task needs to be filled in. In Figure 283 you can see that that it is not logical to configure all the options. If you implemented the task shown in the diagram, you would pause a server that had just been stopped. The reason that we have filled in the options is purely for descriptive purposes and when we show a few examples, we perform one task or another.

#### 6.4.4 Database Checkup and Tuneup

Database checkup and tuneup will check the integrity of your database. Enter the name and location of the database and the percentage of fragmentation allowable for this database. You can set up multiple instances of this task should you have more than one database. You can also specify separate fragmentations for each database. The Checkup and Tuneup dialog box follows.

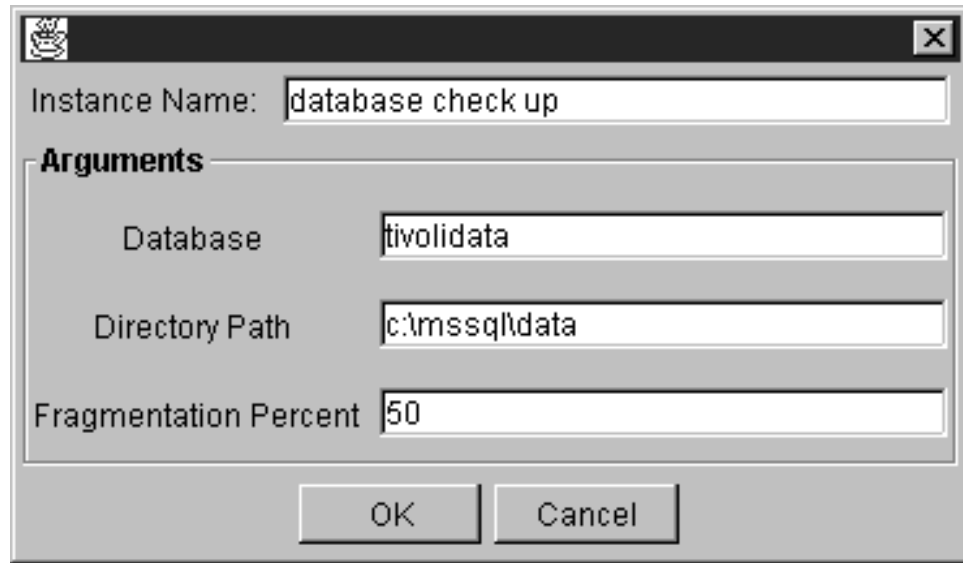


Figure 284. Database Checkup and Tuneup Task

### 6.4.5 Dump Transaction Log

Before we go into detail about the transaction dump task, make sure that you fill in all the fields. If you leave a field blank, once you close the task editor the blank field will be moved to the bottom of all the fields and all other fields will shift one up to take the place of the blank field. This could be disastrous, so be careful.

Instance Name:

**Arguments**

Database	<input type="text" value="tivolidata"/>
Dump Device	<input type="text" value="tivolidump"/>
Output File and Path	<input type="text" value="c:\mssql\dumps\tivoli"/>
Use Last Backup Device? (y/n)	<input type="text" value="n"/>
Skip Headers? (y/n)	<input type="text" value="y"/>
Unload? (y/n)	<input type="text" value="y"/>
Overwrite Backup? (y/n)	<input type="text" value="y"/>
Use With No Log? (y/n)	<input type="text" value="n"/>
Use With No Truncate? (y/n)	<input type="text" value="y"/>
Use With Truncate Only? (y/n)	<input type="text" value="n"/>

OK Cancel

Figure 285. Dump Transaction Log Dialog Box

The dump transaction dialog box is shown in Figure 285. As you can see from the diagram, there are a lot more options available for dumping a transaction log than what we have seen so far with this AMP. Supply a meaningful name for the task, as there are many options, and you may want to create an instance of the same task with different options for each of your databases.

Dump is synonymous with backup in SQL terms. When a database is *dumped*, it is copied to the dump device that you specify. If you look again at Figure 285, you can see that this task is to dump (back up) the transaction log and not the whole database. In SQL terms, this is known as an *incremental backup*.

The options for this task are as follows:

- *Database* - The name of the database whose transaction log you would like to back up (dump).
- *Dump Device* - The dump device is the device that you have created for backup purposes on your SQL server. Please note that you can't do an incremental backup if your database and transaction log reside on the same physical device.

- *Output File and Path* - Enter the name and path of the backup file and where it is to be created.
- *Use Last Backup Device y/n* - If you have made a backup of the transaction log before, you can specify that you would like to use the last device that the backup was made on. This is especially useful when you are using a tape streamer as a backup device.
- *Skip Headers* - If you enter y to skip headers, the ANSI tape labels on your backup tape device will be ignored. Note this option will have no effect unless you are dumping to a tape device.
- *Unload* - Entering y for this option will cause your tape device to rewind after the backup and unload itself. Do not enter y if you will be making multiple backups to the same tape device.
- *Overwrite Backup* - You can select y if you want existing backups on either tape or disk to be overwritten with the new backup.
- *Use With No Log* - Should your transaction log become too full to dump, select this option. It may sound a little strange, but sometimes the transaction log gets so full that it can't log the dump event. For this case, enter y to use with no log. Remember to do a full backup of your database once you have dumped the log.
- *Use With No Truncate* - Once the log has been backed up, the inactive pages in the log are cleaned up or truncated. If, however, you suspect that your database is corrupted and might need to be rebuilt, you should enter y for this option.
- *Use With Truncate Only* - You should answer y for this option, if your database and log are on the same database device. Transaction logs stored on the same database device can't be backed up, as they are automatically backed up with the database itself. You could also opt to enter y should you not require the logs as part of your backup plan and rely on entire database backups instead.

Figure 286 on page 202 shows how the Tivoli transaction log would be configured from within the enterprise manager of SQL.

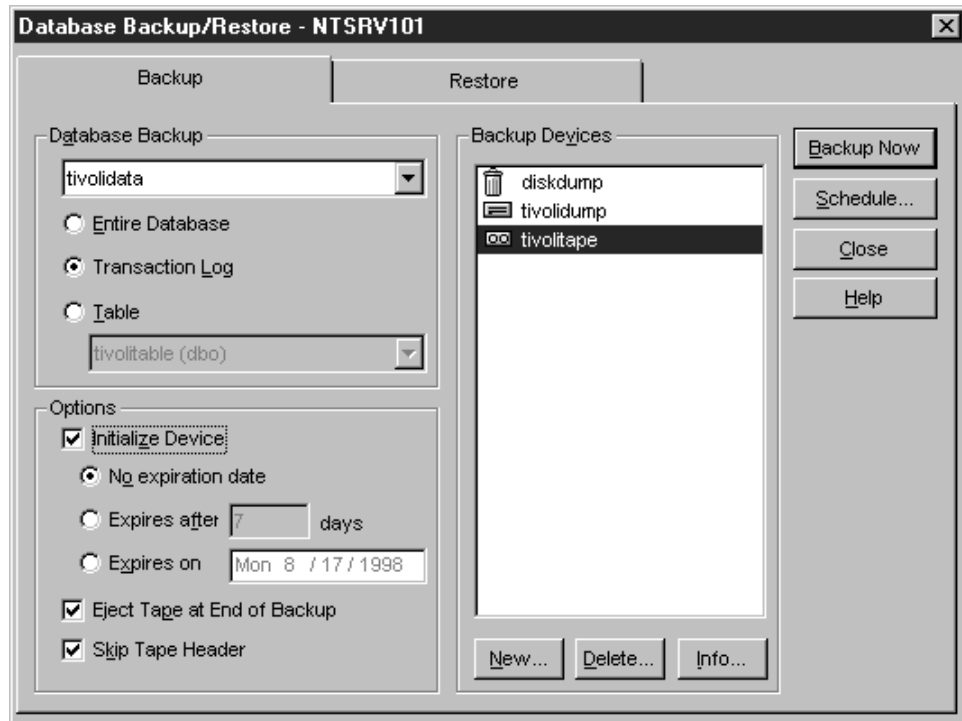


Figure 286. Database Backup and Restore in SQL Enterprise Manager

### 6.4.6 Refresh Optimizer Statistics

The next option that you can configure as part of your SQL AMP solution is the Refresh Optimizer Statistics. When you create an index for your database, SQL builds a table of statistics based on the index that you created. SQL will then use these statistics when a query is run against the database to find the data quickly and easily. Over time, as more updates are made to the table, the statistics that SQL gathered when the index was created become outdated. To refresh the statistics and align them with your index again, you would execute the refresh optimizer statistics.



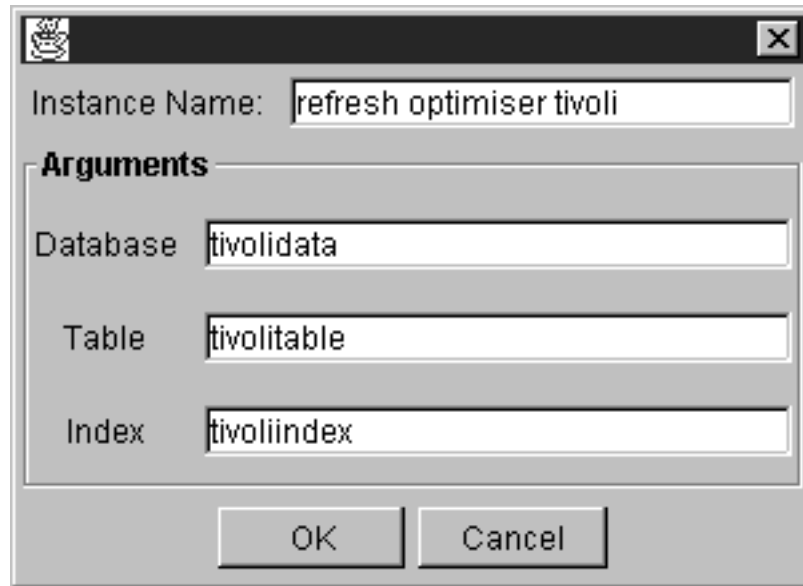


Figure 287. Refresh Optimizer Statistics

There are only three arguments that need to be specified in configuring the Refresh Optimizer task. All that you have to specify is the *index* for the table in the database you wish to optimize.

#### 6.4.7 SetDB Options

This brings us to another quite complicated task that you can configure for the SQL AMP: the database options. Once again, as there are many options that can be set, be sure to name your individual instances in a way that you can easily recognize.

**Create New Task Instance**

Instance Name:

**Arguments**

Database Name	<input type="text" value="Support"/>
DBO Use Only	<input type="text" value="n"/>
No Checkpoint On Recovery	<input type="text" value="n"/>
Offline	<input type="text" value="n"/>
Enable Publishing	<input type="text" value="y"/>
Read Only	<input type="text" value="n"/>
Select Into Bulk Copy	<input type="text" value="n"/>
Single User	<input type="text" value="n"/>
Enable Subscribing	<input type="text" value="y"/>
Truncate Log On Checkpoint	<input type="text" value="n"/>

OK Cancel

Figure 288. Set Database Options

The explanation of the arguments that can be configured, are as follows:

- *Database Name* - The name of the database that you are going to work with.
- *DBO Use Only* - Set this option to y if you only want the creator of the database to be able to access the database. Note that the administrator user ID (sa) will still be able to access the database.
- *No Checkpoint On Recovery* - Usually, when a database comes online, a checkpoint is generated. The checkpoint can be used to trigger other tasks. If you would like the occurrence of the database coming online merely to be logged to the application log, set this option to y.
- *Offline* - Setting this option to y will take the database offline and the database will not initialize on system startup until it has been made online again.
- *Enable Publishing* - With this option set to n the database can't be published for replication. Set it to y to allow your database to be replicated.
- *Read Only* - Setting this option to n allows the database to be written to as well as read from.

- *Select Into Bulk Copy* - When the Select Into Bulk Copy option is set to y you can perform the following non-logged operations on your database: WRITETEXT, UPDATETEXT, SELECT INTO and use fast bulk copy (bcp) to do nonlogged loads. Note, if you have set this option to y, and you have performed any nonlogged operations, you will not be able to dump the transaction log.
- *Single User* - This option set to y will allow only one user to access the database at any one time. If this option is set to y, the option *Truncate log on checkpoint* is not supported. The log will have to be truncated after single user operations are complete.
- *Enable Subscribing* - When this option is set to y, the database is made available to be subscribed to.
- *Truncate Log On Checkpoint* - This option set to y will clear the committed transactions from the transaction log every time a checkpoint is issued by the system. Checkpoints happen roughly once a minute. Set this value to y, if you do not need to make backups of the transaction log. The default value for this option is n.

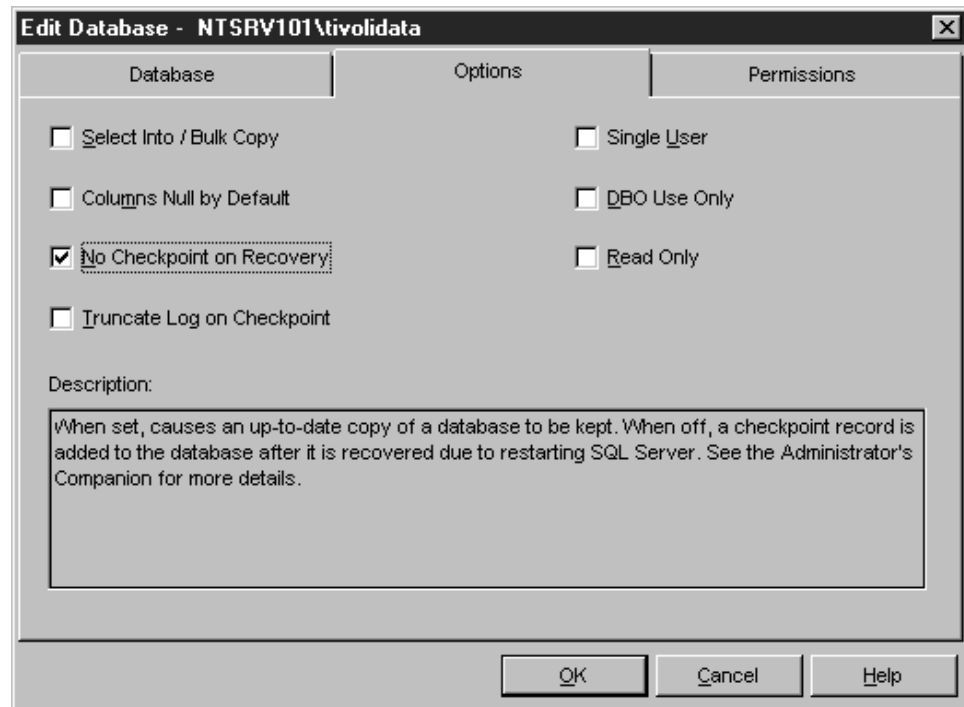


Figure 289. Database Options View from Server Manager in SQL

You would normally configure the database options for SQL from the server manager within SQL server. Figure 289 shows the traditional SQL6.5 view for setting database options.

## 6.4.8 Recovery Preparation

An instance is provided in the SQL AMP that allows you to dump one or many databases. This task also has several arguments that can be configured (see Figure 291 on page 207).

Remember that you can have multiple task instances of the same AMP task, each performing a task defined by the way the task arguments are configured.

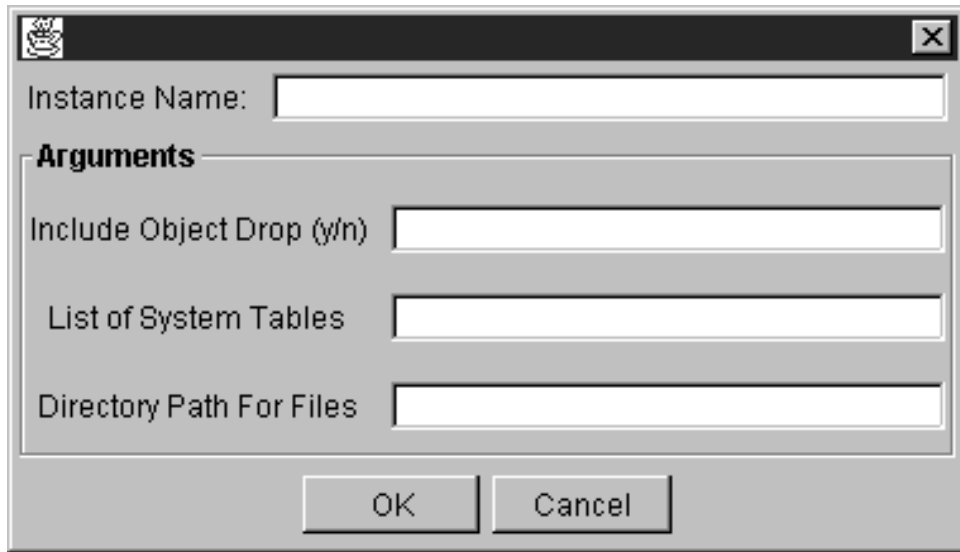


Figure 290. Recovery Preparation

### 6.4.9 Dump Database Task

The arguments for dumping (backing up) the database are as follows:

- *Database* - The name of the database you want to back up.
- *Dump Device* - The name of the backup device that you have created for backups.
- *Output File and Path* - SQL 6.5 allows you to back up a database to the local machines' hard drive or to a network share without setting up a dump device in advance. To do this, you need to supply the path and file name of the backup. The file extension for the backup will be .DAT. Your output file and path may look something like this: C:\MSSQL\BACKUP\tivolitemp.dat or \\SQLNT1\BACKUP\tivolitemp.dat. Make sure you have the correct permissions for the network share.
- *Perform DBCC* - There are a few DBCC commands that we recommend that you run on your database prior to dumping it. These commands are DBCC CHECKDB, DBCC CHECKALLOC or NEWALLOC and DBCC CHECKCATOLOG. Set this option to y if you would like these DBCC commands to be run before you back up the database.
- *Use Last Backup Device* - Set to y if you would like to back up the database to the same device that you backed up to the last time. Set it to n if you would like to use a new device.
- *Skip Headers* - Read ANSI characters on the tape device, answer y or n.
- *Unload* - Rewind and unload the tape after the backup is complete.
- *Overwrite Backup* - Overwrite the last backup on the specified device.

Instance Name:

**Arguments**

Database	<input type="text" value="tivolidata"/>
Dump Device	<input type="text" value="tivolidump"/>
Output File and Path	<input type="text" value="C:\MSSQL\BACKUP\tivolitemp.dat"/>
Perform DBCC? (y/n)	<input type="text" value="y"/>
Use Last Backup Device? (y/n)	<input type="text" value="y"/>
Skip Headers? (y/n)	<input type="text" value="n"/>
Unload? (y/n)	<input type="text" value="y"/>
Overwrite Backup? (y/n)	<input type="text" value="y"/>

Figure 291. Dump Database Task

The last available task for the SQL AMP is the *Refresh Schema Information*. This task is not configurable.

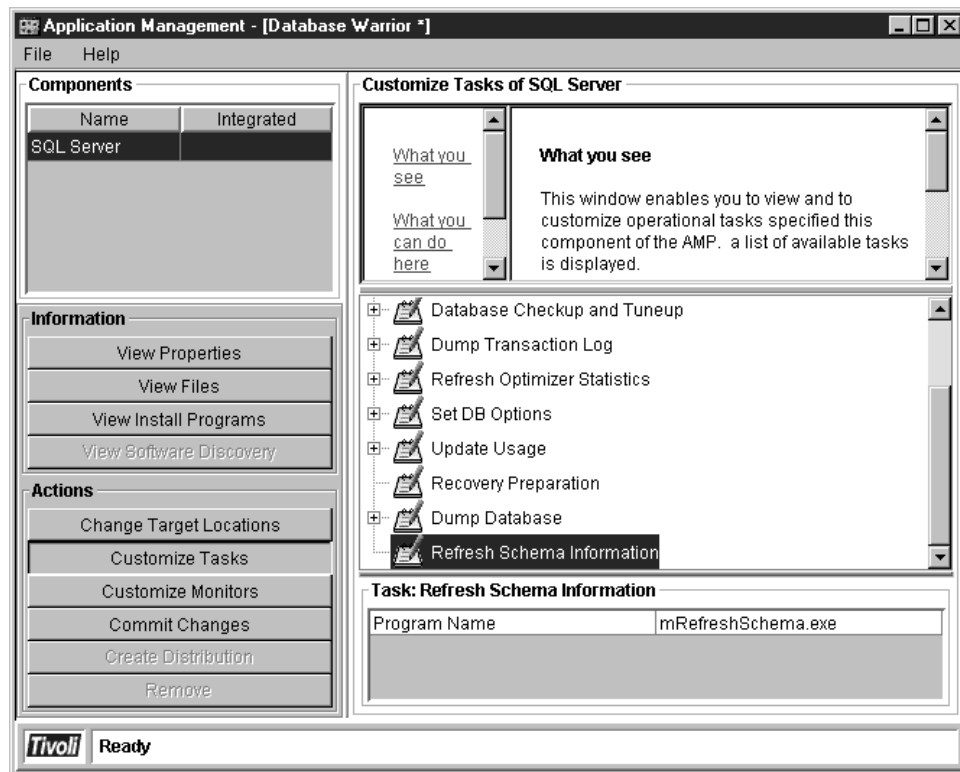


Figure 292. The Refresh Schema Task is Not Configurable

The Refresh Schema task would be used to synchronize a publication and subscription server.

## 6.5 Setting up SQL Monitors in the SQL AMP

SQL Server demands a lot of resources from your server machine, including memory. When SQL is installed, a set of performance counters are added to the SQL Server program group.

The monitors that are delivered with the SQL AMP are:

- Database monitors
  - Database Status (Database)
  - Data Space Percent Used (Database)
  - Fragmentation
  - Log Space Percent Used (Database)
  - Oldest Open Transaction (Database)
  - Optimizer Statistics Age
  - Suspect Database
  - Table Space Used (Database)
  - Table Space Used (Table)
- Server monitors
  - Cache Configured Free Buffers Percent Used

- Client Count Percent Used
- Connection Status
- MSSQL CPU Percent Busy
- Database Status (Server)
- Data Space Percent Used (Server)
- Delivery Latency
- Freeform SQL Numeric
- Freeform SQL String
- NT Application Log
- NT Application Log Percent Full
- Number Of Blocked Processes
- Number Of Deadlocks
- Oldest Open Transaction (Server)
- RA Effectiveness
- Services Running
- SQLExecutive Failed Tasks
- Undelivered Transactions
- User Connections Percent Used

The suggested performance monitors can be seen in the bottom part of Figure 293 on page 210. You can also add SQL monitors to your existing performance monitor counters for that machine, by selecting the SQL monitors in the NT performance monitor as shown in Figure 294 on page 210.

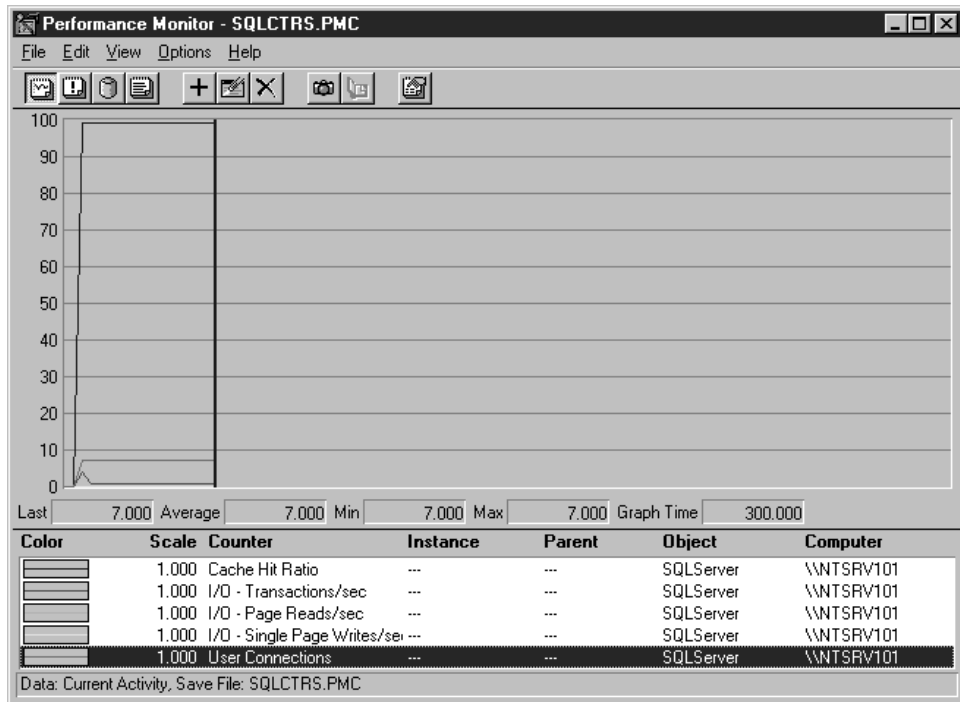


Figure 293. The SQL Monitors Configured by SQL Installation

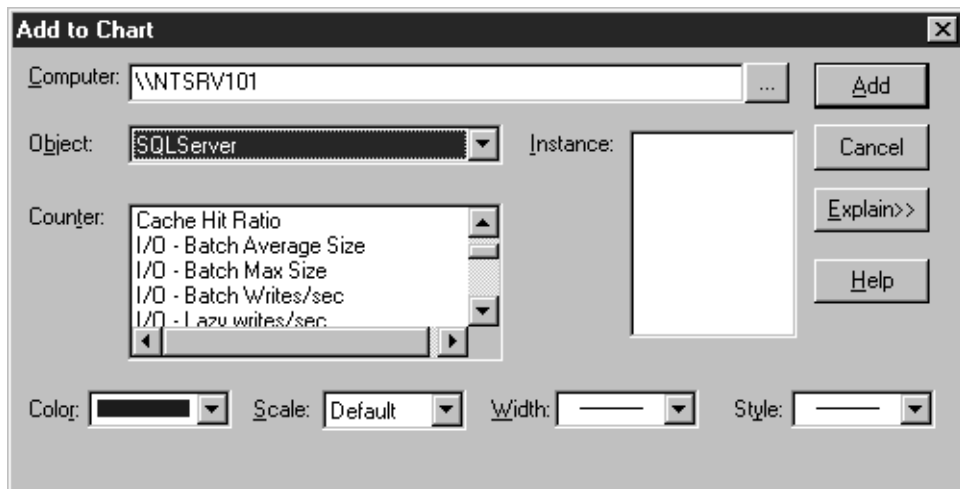


Figure 294. NT Performance Monitor - SQL Objects

The SQL AMP makes use of these performance objects to monitor the SQL server and report errors and warnings back to IT Director. There are basically two types of monitors employed by the AMP: those that can't be configured and those that need specific metrics to monitor.

The AMP monitor tasks that require specific information, are listed below. They would typically require at least the name of the database.

configurable monitors:

- Optimizer Statistics Age
- Fragmentation



- Data Space Percent Used
- Free Form SQL String
- Free Form SQL Numeric
- Table Space Used.
- Log Space Percent Used
- NT Application Log Errors
- Oldest Transaction

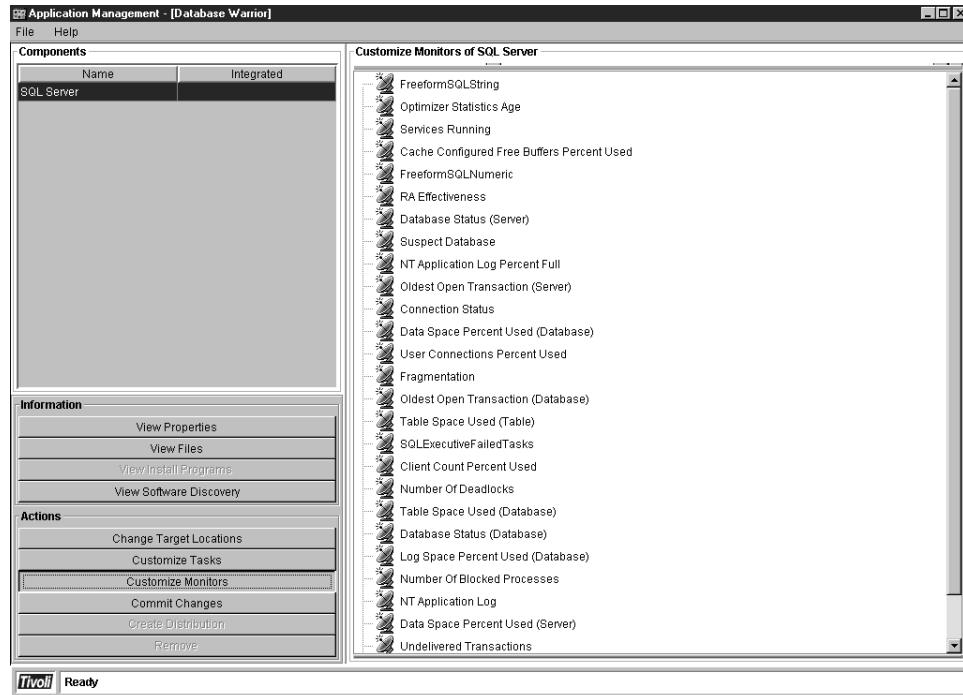


Figure 295. SQL Monitor Tasks

Nonconfigurable monitors:

- Page read rate
- Command queue length
- Blocked processes
- Undelivered transactions
- Single page write rate
- Network Read Rate
- CPU percent busy
- Application log percent full
- RA pages fetched into cache rate
- User connections
- Deadlocks
- Client count percent used
- Network write rate

- Cache percent used
- Replication latency
- Any failed SQL executive task
- Delivery latency
- Outstanding writes
- Outstanding reads
- Cache free buffers percent used
- SQL server state
- Cache hit ratio
- Log write rate
- RA Pages found in cache rate
- Lazy write rate

We discuss a few of the monitors mentioned here and what they measure. The rest we will not discuss, as they are self-explanatory.

SQL has a set of counters already set up for you to use, after you have installed SQL. This set of counters monitor:

- Cache hit ratio
- I/O transactions/sec
- I/O page reads/sec
- I/O single page ratio
- I/O single page writes/sec
- User connections

Although these counters give you a general idea of how your server is performing, you will probably want to use some of the other counters supplied in the SQL AMP.

### 6.5.1 Non-configurable SQL Monitor Tasks

If you right click on any of the monitors you will get a pop-up window asking you if you want to create a new monitor instance. Click on **OK**. Then, right mouse click on that instance to create a new threshold.

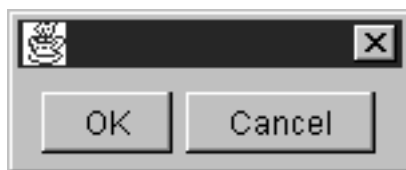


Figure 296. New Monitor Instance

A good place to start monitoring your SQL server is by using the *Cache Hit Ratio* counter. This is the percentage of time that a request was found in the data cache instead of being read from disk. The Cache Hit Ratio monitor can't be customized. The *Lazy Write Rate* is another good monitor to have running. The lazy write task

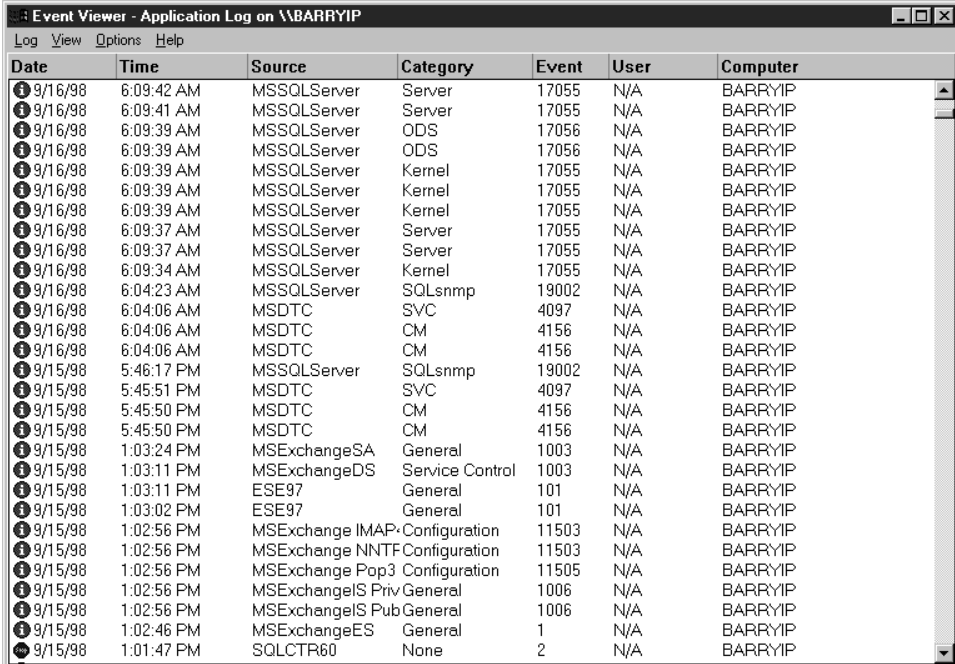
is used to flush older information that has been cached back to disk to make space for newer information.

Remember that you will also be able to use existing Tivoli IT Director monitors together with the monitors that you are configuring for the SQL AMP.

SQL can be very CPU intensive. The CPU percent busy monitor is very helpful in identifying whether your CPU has a bottleneck.

A few of the other helpful tasks that can be used to monitor your SQL server are:

- User Connections - Track the activity on the server, allowing you to identify areas where the network is suffering due to too many connections.
- Network reads/sec or writes/sec - Do you need faster network cards?
- Deadlocks - SQL server will lock an entry when it is being updated. This keeps the data consistent for all users. Sometimes the database or record is dead-locked until a specific process is complete. Dead locks are monitored with this task.
- Any failed SQL executive task - This task will monitor the Application Log on your SQL server. The Application Log is where SQL will write SQL executive errors to.



Date	Time	Source	Category	Event	User	Computer
9/16/98	6:09:42 AM	MSSQLServer	Server	17055	N/A	BARRYIP
9/16/98	6:09:41 AM	MSSQLServer	Server	17055	N/A	BARRYIP
9/16/98	6:09:39 AM	MSSQLServer	ODS	17056	N/A	BARRYIP
9/16/98	6:09:39 AM	MSSQLServer	ODS	17056	N/A	BARRYIP
9/16/98	6:09:39 AM	MSSQLServer	Kernel	17055	N/A	BARRYIP
9/16/98	6:09:39 AM	MSSQLServer	Kernel	17055	N/A	BARRYIP
9/16/98	6:09:39 AM	MSSQLServer	Kernel	17055	N/A	BARRYIP
9/16/98	6:09:37 AM	MSSQLServer	Server	17055	N/A	BARRYIP
9/16/98	6:09:37 AM	MSSQLServer	Server	17055	N/A	BARRYIP
9/16/98	6:09:34 AM	MSSQLServer	Kernel	17055	N/A	BARRYIP
9/16/98	6:04:23 AM	MSSQLServer	SQLsnmp	19002	N/A	BARRYIP
9/16/98	6:04:06 AM	MSDTC	SVC	4097	N/A	BARRYIP
9/16/98	6:04:06 AM	MSDTC	CM	4156	N/A	BARRYIP
9/16/98	6:04:06 AM	MSDTC	CM	4156	N/A	BARRYIP
9/15/98	5:46:17 PM	MSSQLServer	SQLsnmp	19002	N/A	BARRYIP
9/15/98	5:45:51 PM	MSDTC	SVC	4097	N/A	BARRYIP
9/15/98	5:45:50 PM	MSDTC	CM	4156	N/A	BARRYIP
9/15/98	5:45:50 PM	MSDTC	CM	4156	N/A	BARRYIP
9/15/98	1:03:24 PM	MExchangeSA	General	1003	N/A	BARRYIP
9/15/98	1:03:11 PM	MExchangeDS	Service Control	1003	N/A	BARRYIP
9/15/98	1:03:11 PM	ESE97	General	101	N/A	BARRYIP
9/15/98	1:03:02 PM	ESE97	General	101	N/A	BARRYIP
9/15/98	1:02:56 PM	MExchange IMAP	Configuration	11503	N/A	BARRYIP
9/15/98	1:02:56 PM	MExchange NNTF	Configuration	11503	N/A	BARRYIP
9/15/98	1:02:56 PM	MExchange Pop3	Configuration	11505	N/A	BARRYIP
9/15/98	1:02:56 PM	MExchangeIS Priv	General	1006	N/A	BARRYIP
9/15/98	1:02:56 PM	MExchangeIS Pub	General	1006	N/A	BARRYIP
9/15/98	1:02:46 PM	MExchangeES	General	1	N/A	BARRYIP
9/15/98	1:01:47 PM	SQLCTP60	None	2	N/A	BARRYIP

Figure 297. Application Event Log

## 6.5.2 Tasks that Must be Customized

The monitor tasks that must be customized are those that have reference to specific or individual databases. Once you have customized a task, you can then proceed to add thresholds for the task instance, as shown in Figure 299 on page 214.

The *Optimizer Statistics Age* monitors the SQL optimizer. Over time with frequent updates to a database, the query optimizer becomes out of sync with the database table and consequently helpful indexes will be ignored.

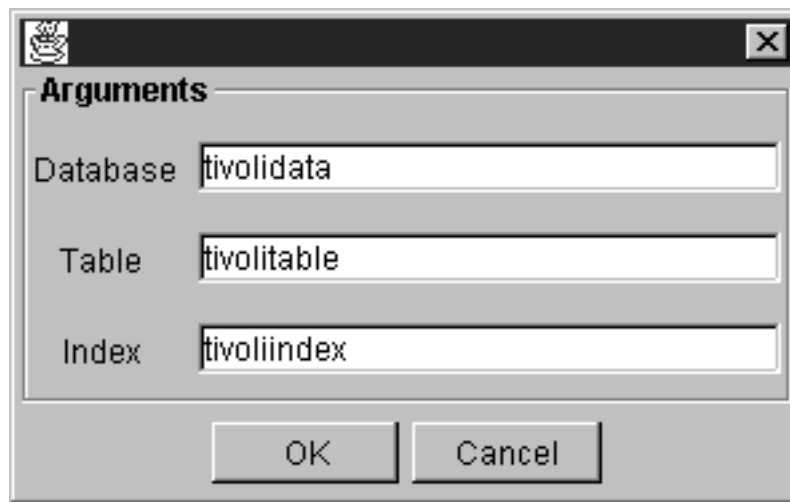


Figure 298. The Optimizer Statistics Age

The arguments for the Optimizer Statistics Age are shown in Figure 298. Enter the names of your database, table and index and click on **OK**.

You can now set up a threshold for that monitor.

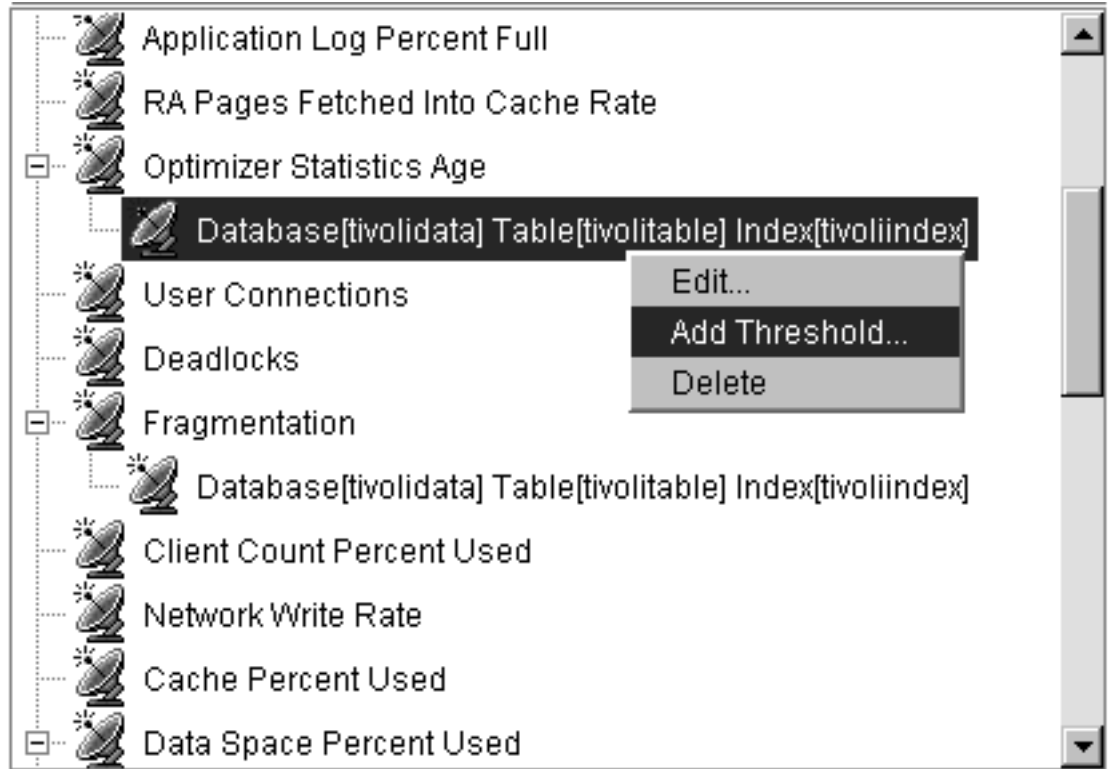


Figure 299. Set Thresholds for Customizable Monitors

Using the right mouse button, click on **Add Threshold** and you will be presented with the new threshold dialog box as shown in Figure 300 on page 215.

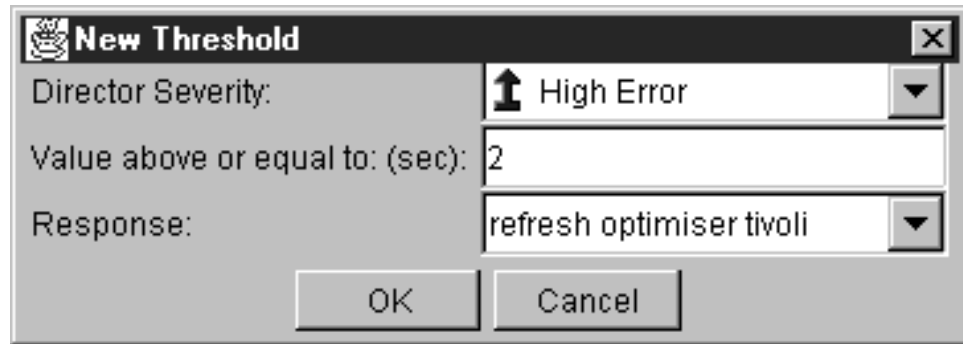


Figure 300. Configuring the Threshold for Optimizer

The response that you supply will be selectable from a list. This list of responses is compiled from the SQL Application manager tasks that you customized in 6.4, “Configuring the Tasks for the SQL AMP” on page 192.

The above or equal to value is the time in seconds that it takes the Query optimizer to process, organize and execute a query. Click on **OK** to save the threshold.

The next useful monitor to utilize is the Fragmentation monitor. The arguments that can be specified for this monitor are the same as the Optimizer Statistics Age. The database, table and index must be entered as arguments (see Figure 298 on page 214).

Once you have entered the names of the database, table and index, you can go ahead and set a threshold for the monitor.

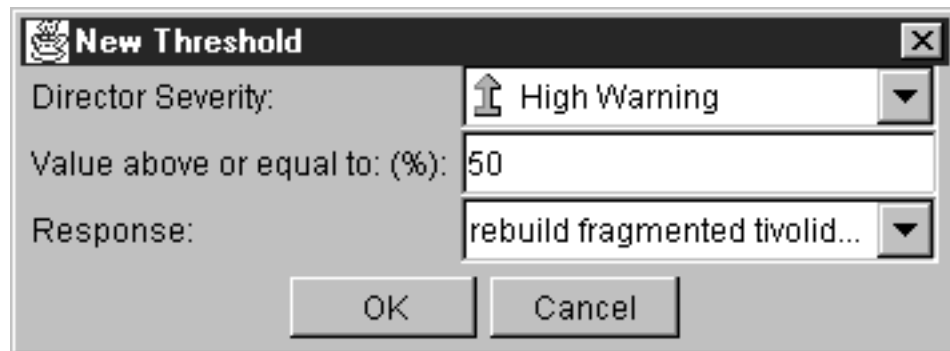


Figure 301. Configuring the Threshold for Fragmentation

Figure 301 shows the configuration options for the fragmentation monitor for the SQL AMP. Choose a director severity for the monitor and a response from the drop-down list of responses. Remember that the list of options in the drop down list are the tasks that you configured previously in 6.4, “Configuring the Tasks for the SQL AMP” on page 192.

Although there are a list of available responses for the thresholds, it is not necessary to always select a response task that you have configured. By default, the response is set to none. If you want the monitor merely to alert you of a certain condition that is occurring on your server, select none. The monitor will then alert you of the condition and not perform any task. You can then remedy the condition manually.

The fragmentation threshold relies on a *value above or equal to* value of fragmentation. Enter the absolute maximum fragmentation allowed for this database, as a percentage. Click on **OK** to save the monitor threshold.

To monitor the available space for your tables, you can use the *Table Space Used* monitor. The arguments that you must supply for the task are shown in Figure 302. Enter the name of the database and the table and click on **OK** to save the the monitor.

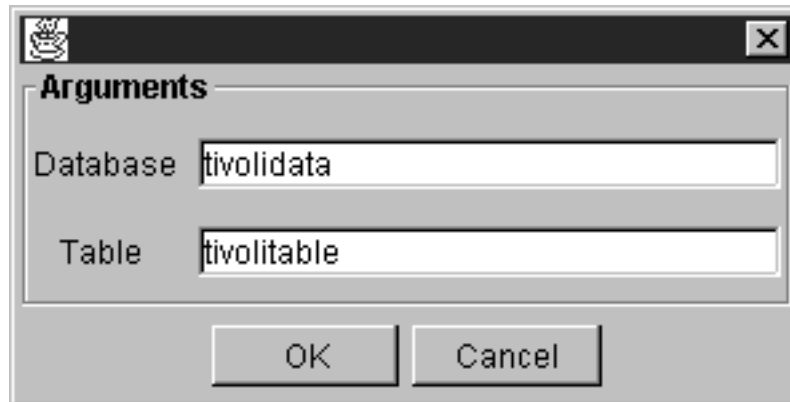
A screenshot of a dialog box titled "Arguments" with a crown icon and a close button. It contains two text input fields: "Database" with the value "tivolidata" and "Table" with the value "tivolitable". At the bottom are "OK" and "Cancel" buttons.

Figure 302. The Arguments for Table Space Used

To set the threshold for the table space being used, you need to supply director severity, threshold and the required response. In this example, Figure 303, we chose to be alerted when the table space used reaches 15 MB.

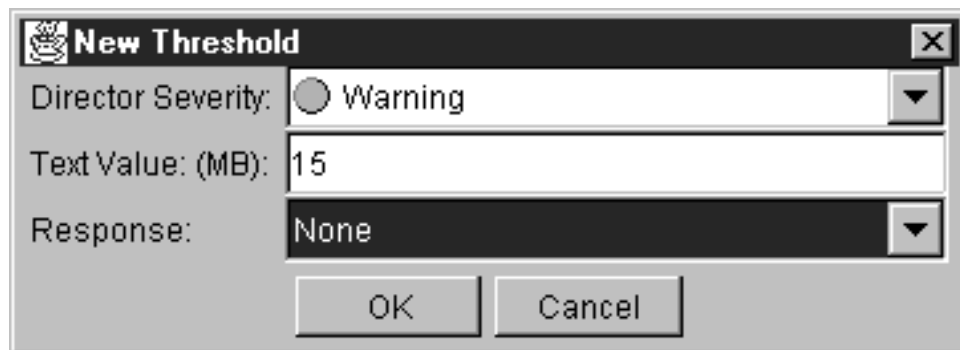
A screenshot of a dialog box titled "New Threshold" with a crown icon and a close button. It contains three fields: "Director Severity:" with a radio button selected next to "Warning", "Text Value: (MB):" with the value "15", and "Response:" with a dropdown menu showing "None". At the bottom are "OK" and "Cancel" buttons.

Figure 303. New Threshold for Table Space Used

The *Log Space Percent used* is configured in exactly the same way as the *Table Space Used* monitor. The only difference is that instead of specifying a threshold value in MBs, you specify it in percentage of space used.

The Oldest Transaction task is very useful in determining what transactions are still active in the database log. Transaction that are still running prevent the transaction log from being dumped. This could eventually cause the transaction log to fill up. Long-running transactions are usually caused by application errors or badly formed queries. Using the Oldest Transaction task, you can identify which transactions are still running. Normally, in SQL server you would issue the command DBCC OPENTRAN to do the same thing as the Oldest Transaction task.

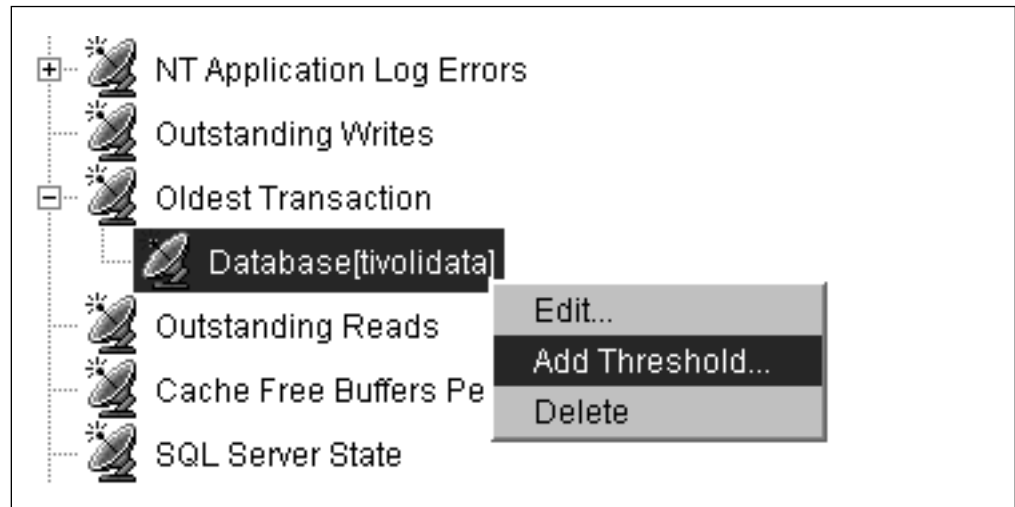


Figure 304. Adding a Threshold to the Oldest Transaction Monitor

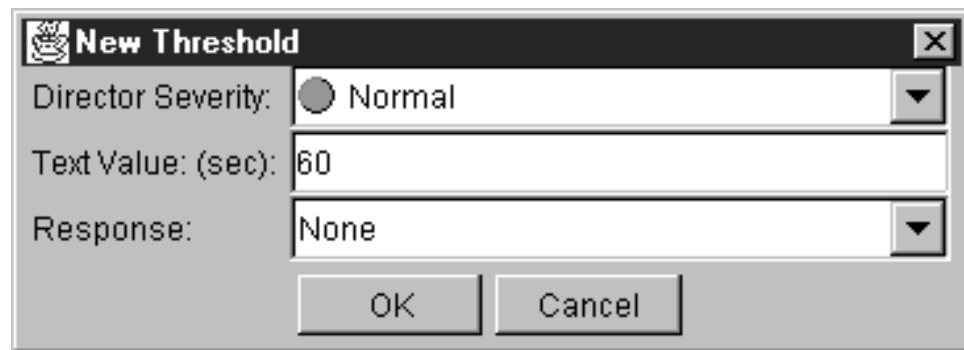


Figure 305. Customizing the Oldest Transaction Threshold

Once you have set the threshold, click on **OK** to save the threshold.

## 6.6 Committing the Changes

Now that you have configured the tasks, monitors and thresholds, you are ready to commit the changes and create a software distribution package that will be distributed to your SQL servers on the network.

When you are ready to commit the changes, select the **Commit Changes** button and click on the **Commit Changes** icon in the right hand pane as shown in the following window.

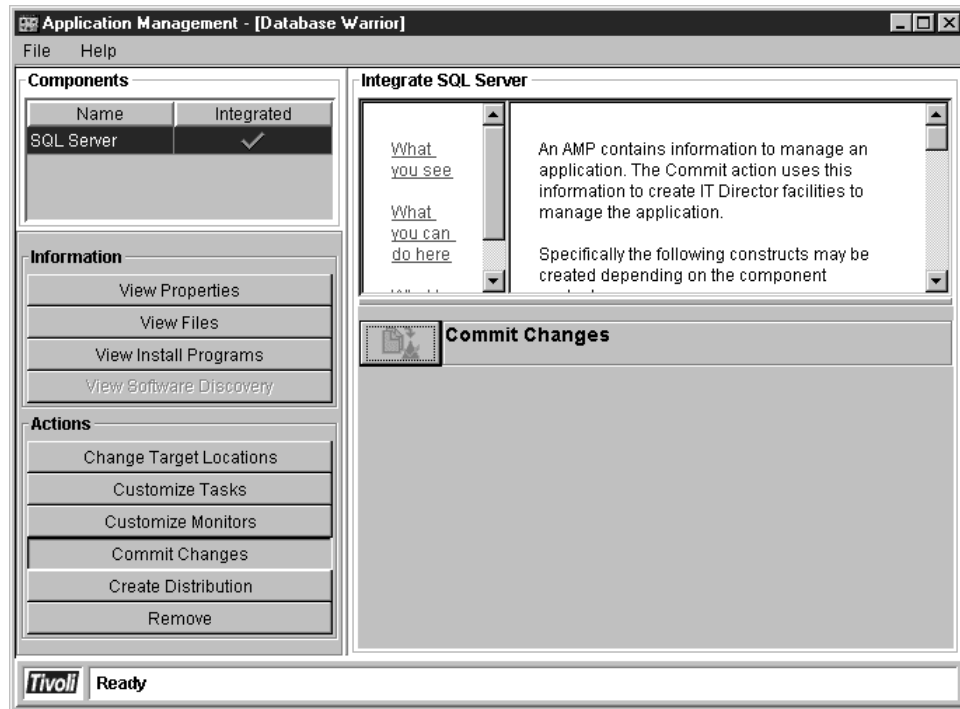


Figure 306. The SQL AMP Commit Changes Window

The changes were committed to the AMP and you will receive a message that the changes were committed successfully. While committing the changes that you made, Tivoli IT Director's Application manager makes changes to four files. The files that are modified are:

1. \TivoliWG\amsdata\data\TWGJob.dat
2. \TivoliWG\amsdata\data\TWGSRVCD.DAT
3. \TivoliWG\amsdata\data\TWGSRVDS.DAT
4. \TivoliWG\amsdata\TivoliDatabaseWarrior11.0\project.ams

**Note:** amsdata is a hidden directory.

## 6.7 Creating Software Distribution for the SQL AMP

The changes that you made to the tasks and monitors of the SQL AMP need to be put into a form that can easily be distributed to your SQL server or servers. It needs to be *packaged*. This software package can then be *distributed* to the servers, thus allowing them to be managed from the Tivoli IT Director management console.



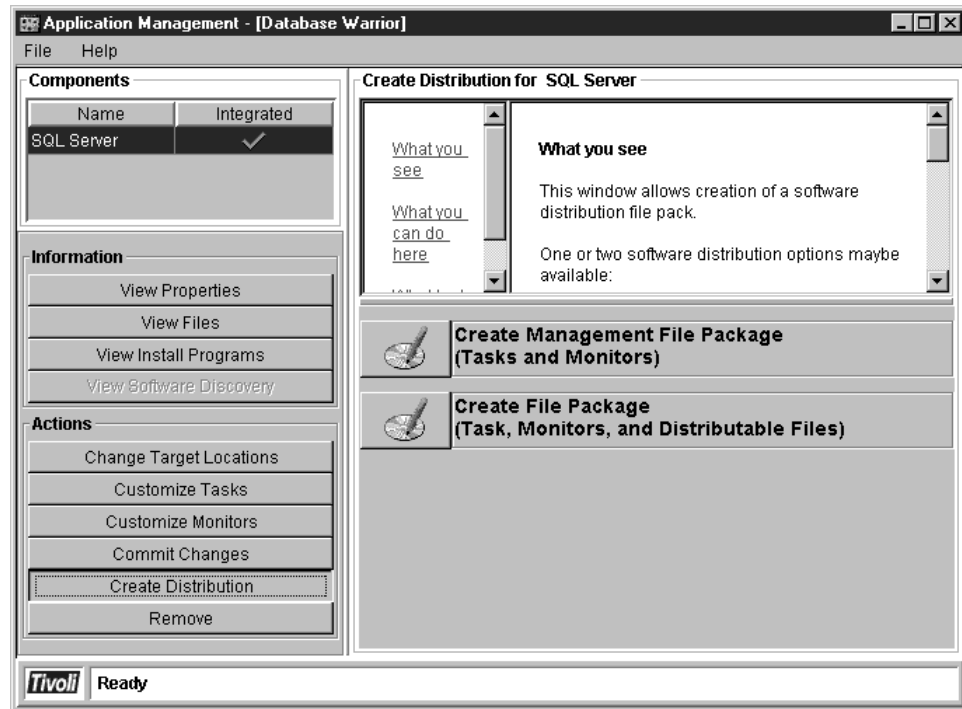


Figure 307. The Create Distribution Window

Click on **Create Distribution** (see Figure 307) and then on the icon **Create Management File Package**.

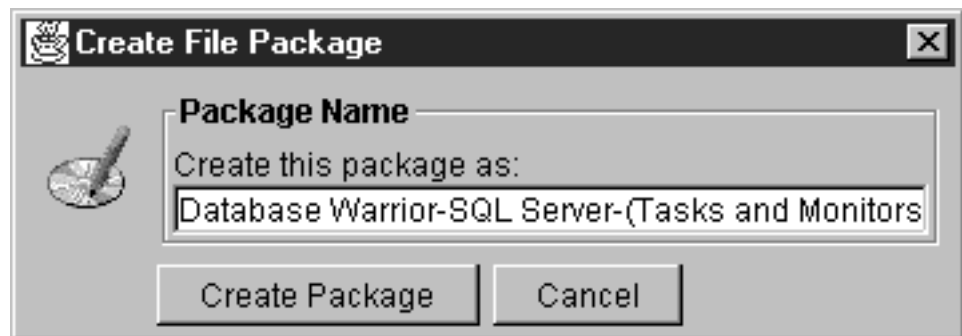


Figure 308. The Create Distribution Window

Figure 308 asks you to confirm what you want to call the file package. We decided not to change the default name in this case but you will probably want to change the name so that it matches the package contents. Click on the icon **Create Package**.

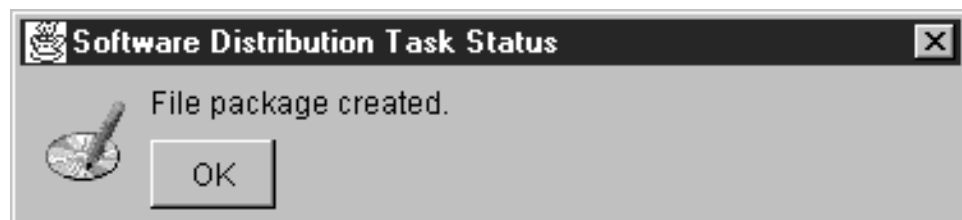


Figure 309. The Create Distribution Window

Figure 309 is displayed once the files are created.

The files that are created as part of the management file package are:

- \TivoliWg\SwDistPk\4nrpt0.blk
- \TivoliWg\SwDistPk\4nrpt0.fp

Now you can create the File Package (task, monitors and distributable files).

If you selected the Create Distribution button again (see Figure 307 on page 219), click on the **Create File package** button below the Management File Package.

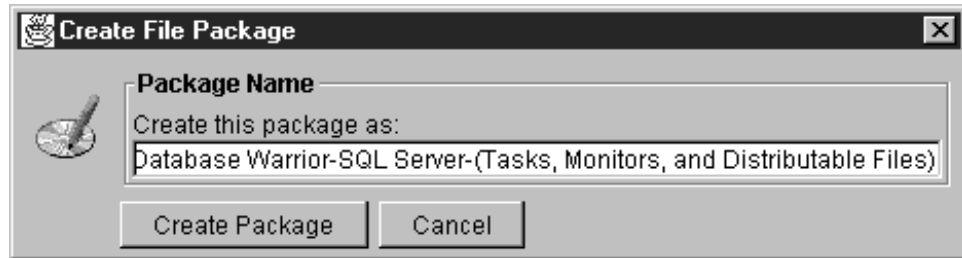


Figure 310. Name Your File Package

Figure 310 will allow you to name the file package and then you can continue by clicking on **Create Package**.

The creation of the second file package adds two files to the \TivoliWg\SwDistPk\ directory. The names of these files are 4q1r60.blk and 4q1r60.fp.

**Note:** These files should not be edited directly or moved from their default locations, as this could lead to undesirable effects.

It is also interesting to note that the four files mentioned earlier in this chapter, namely project.ams, twgjob.dat, twgsrvcd.dat and twgsrvds.dat, are also modified every time you create a software distribution package.

The software packages have been created and are ready for distribution to your SQL servers. Close the Application Management window.

---

## 6.8 Working with the SQL AMP

Before you can perform any functions on your SQL server, you must distribute the management file package to the SQL server.

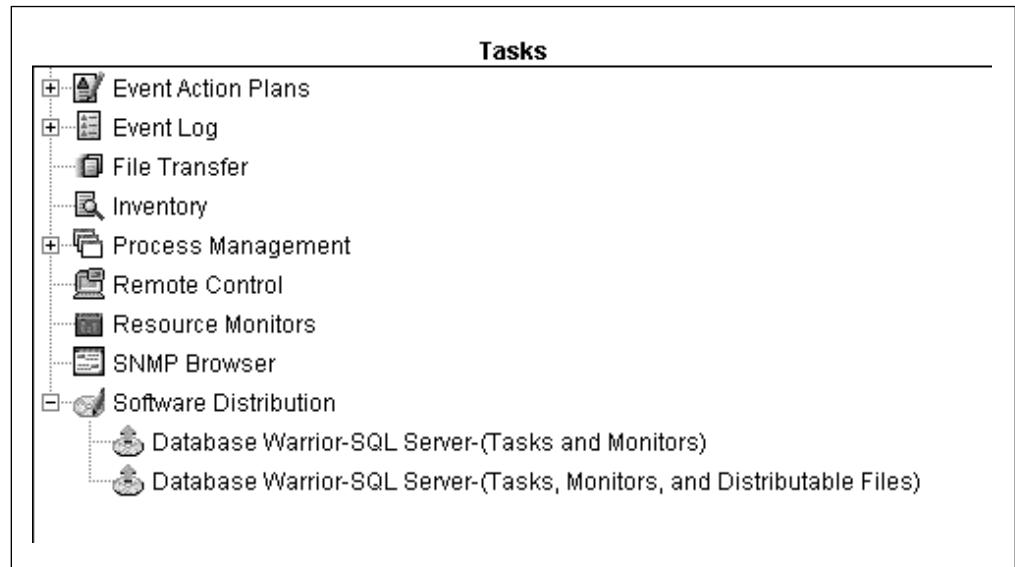


Figure 311. MFP Added to Software Distribution Task

In Figure 311 the two management file packages that you created are now available as options under the software distribution task of the Tivoli IT Director management console.

To distribute the management file package (MFP) to the SQL server is as simple as dragging and dropping the package onto the SQL server system in the Group Contents window of the Tivoli IT Director management console.

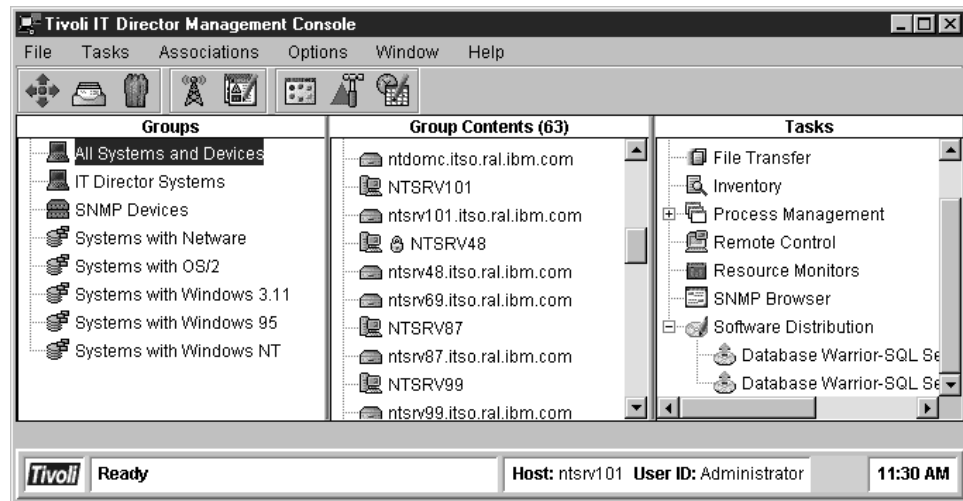


Figure 312. Drag and Drop the MFP Onto your Server

Once the MFP is dropped onto the target system, you can choose whether to execute the task immediately, or to schedule it to happen at a later stage.

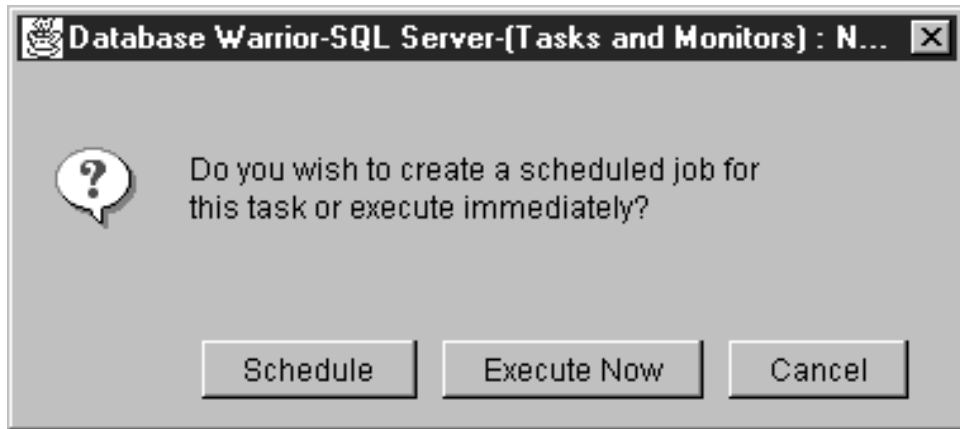


Figure 313. Execute Now or Schedule

We chose to execute the task immediately by clicking on **Execute Now**. The MFP is now installed onto the target (SQL) server. Once the MFP is successfully installed, you are informed that the task has completed successfully as shown in the following window.

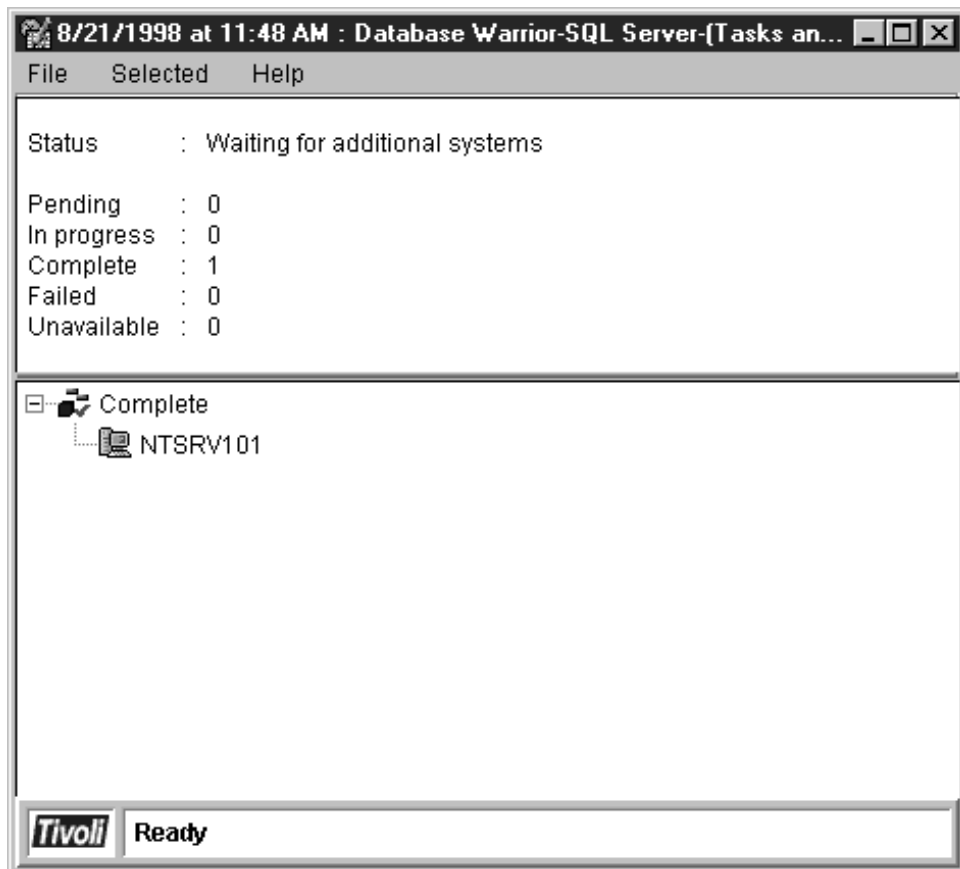


Figure 314. The File Package Installed Successfully

The process of installing the management file package onto the SQL server copies the files that will be needed for monitoring and performing certain tasks to the SQL server. The files that are copied onto the server are shown in Figure 315 on page 223 and Figure 316 on page 223.

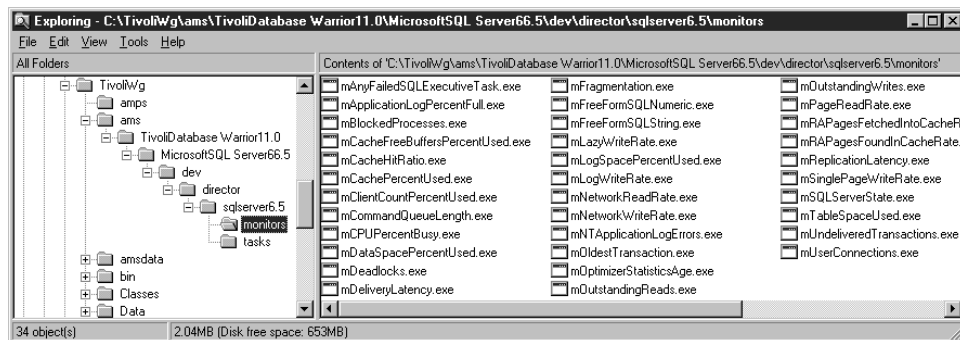


Figure 315. Monitor Files

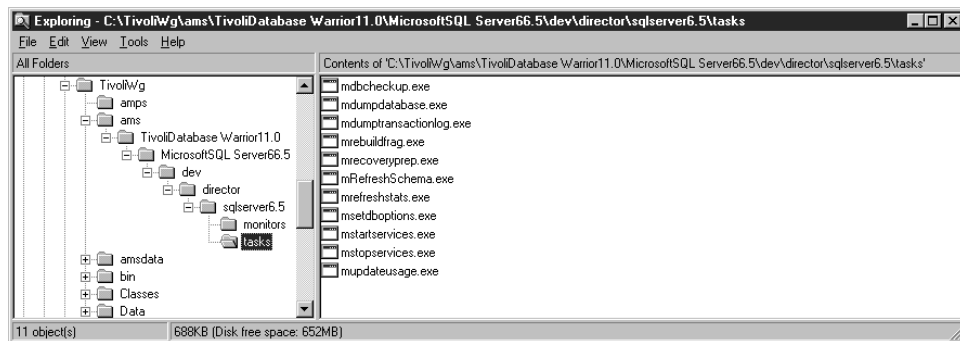


Figure 316. Task Files

In addition to those files, the following files are also installed onto the SQL server:

- \TivoliWg\bin\bmpackag.log
- \TivoliWg\Data\MonAlias.dat

```
Sun Aug 23 10:26:25 1998 :
=====
Sun Aug 23 10:26:25 1998 : Service node created.
Sun Aug 23 10:26:44 1998 : Status request received
Sun Aug 23 10:26:44 1998 : Getting agent information
Sun Aug 23 10:26:44 1998 : getInfo - Periodic callback factor is 1
Sun Aug 23 10:26:44 1998 : streamInit - Processing package:
Sun Aug 23 10:26:44 1998 : Name: 8jx7a0.blk
Sun Aug 23 10:26:44 1998 : Size: 3037696
Sun Aug 23 10:26:44 1998 : Server: TCP/IP::9.24.104.101::TWGSwDistJob_1
Sun Aug 23 10:26:44 1998 : Client: TCP/IP::9.24.104.101::SoftwareDist
Sun Aug 23 10:26:44 1998 : Block Size: 49152
Sun Aug 23 10:26:44 1998 : streamInit: Created package file: C:\TivoliWg\SwPkgInst\bmTemp\8jx7a0.blk
Sun Aug 23 10:26:44 1998 : updateServerStatus - Sending status update 0x1
Sun Aug 23 10:26:44 1998 : Building status message
Sun Aug 23 10:26:45 1998 : Status request received
Sun Aug 23 10:26:47 1998 : unpack_one - Current file ptr of 8527 saved for package
Sun Aug 23 10:26:59 1998 : 3037696 of 3037696 bytes written to package file, C:\TivoliWg\SwPkgInst\bmTemp\8jx7a0.blk
Sun Aug 23 10:26:59 1998 : updateServerStatus - Sending status update 0x2
Sun Aug 23 10:26:59 1998 : Building status message
Sun Aug 23 10:26:59 1998 : Status request received
Sun Aug 23 10:26:59 1998 : updateServerStatus - Sending status update 0x3
Sun Aug 23 10:26:59 1998 : Building status message
Sun Aug 23 10:26:59 1998 : unpack_one - Current file ptr of 8527 restored for package
Sun Aug 23 10:27:00 1998 : Status request received
Sun Aug 23 10:27:00 1998 : check_path - creating dir C:\TivoliWg\ams\TivoliDatabase Warrior11.0\MicrosoftSQL
Server6.5\dev\director\sqlserver6.5\tasks
Sun Aug 23 10:27:03 1998 : check_path - creating dir C:\TivoliWg\ams\TivoliDatabase Warrior11.0\MicrosoftSQL
Server6.5\dev\director\sqlserver6.5\monitors
Sun Aug 23 10:27:05 1998 : delete_pkg - deleted C:\TivoliWg\SwPkgInst\bmTemp\8jx7a0.blk to conserve disk space
Sun Aug 23 10:27:05 1998 : MPspawn - starting C:\TivoliWg\SwPkgInst\dev\director\DatabaseWarriorServiceInstall.bat after
Sun Aug 23 10:27:05 1998 : MPspawn - CreateProcess failed because The system can't find the path specified.
Sun Aug 23 10:27:05 1998 : unpack_one - after script failed
Sun Aug 23 10:27:05 1998 : DoProcessing - Unpack failed for C:\TivoliWg\SwPkgInst\bmTemp\8jx7a0.blk, err = 0xffff011e
Sun Aug 23 10:27:05 1998 : updateServerStatus - Sending status update 0xffff011e
Sun Aug 23 10:27:05 1998 : Building status message
Sun Aug 23 10:27:05 1998 : Setting the number of byte buffer entries
Sun Aug 23 10:27:05 1998 : Adding string to byte buffer
Sun Aug 23 10:27:05 1998 : Adding integer to byte buffer
Sun Aug 23 10:27:09 1998 : SwDistServiceCleanUp:: SwDistServiceCleanUp
Sun Aug 23 10:27:09 1998 : SwDistServiceCleanUp - removing C:\TivoliWg\SwPkgInst\bmTemp
Sun Aug 23 10:52:21 1998 :
```

Figure 317. Bmpackag.log

The screen above is an example of the information contained in the bmpackag.log file. It is interesting to see in the log file which directories are created when the file package is copied onto the SQL server.

---

## Appendix A. Netscape Suitespot AMP Monitors

These are the monitors and tasks defined by the Netscape Suitespot AMP. They can be customized to create new monitor or task instances.

---

### A.1 Customize Tasks

- Logfile Managaement
- Stop Server
- Launch Admin Server
- Start Server

---

### A.2 Customize Monitors

The following list of monitors are provided with the Netscape Suitespot AMP:

- Error Log File Size
- Access Log File Free Space
- Error Log File Free Space
- Access Log File Size





## Appendix B. Domino Files

Following is a piece of the NOTES.INI file associated with the Domino Server.

```
[Notes]
Preferences=543857
SPELL_LANG=2
KitType=2
Directory=c:\notes\data
SETUPDB=SETUP.NSF
USERNAME=Resident
COMPANYNAME=ITSO Raleigh
MTATEMP=C:\TEMP
WinNTIconPath=c:\notes\data\W32
$$HasLANPort=1
OldRegKey_MAILTO=rundll32.exe url.dll,MailToProtocolHandler
WWWDSync_BROWSERCACHE=0
WWWDSync_PREFETCH_OBJECT=0
EnableJavaApplets=1
EnablePlugins=1
Passthru_LogLevel=0
Console_LogLevel=2
VIEWIMP1=Lotus 1-2-3 Worksheet,0,_IWKSV,,.WKS,.WK1,.WR1,.WRK,.WK3,.WK4,,4,
VIEWIMP3=Structured Text,0,_ISTR,,.LTR,.CGN,.STR,,1,
VIEWIMP4=Tabular Text,0,_ITAB,,.PRN,.RPT,.TXT,.TAB,,1,
VIEWEXP1=Lotus 1-2-3 Worksheet,0,_XWKS,,.WKS,.WK1,.WR1,.WRK,,4,
VIEWEXP3=Structured Text,0,_XSTR,,.LTR,.CGN,.STR,,1,
VIEWEXP4=Tabular Text,1,_XTAB,,.LTR,.RPT,.CGN,.TAB,,1,
EDITIMP1=ASCII Text,0,_ITEXT,,.TXT,.PRN,.C,.H,.RIP,,1,
EDITIMP2=MicrosoftWord RTF,0,_IRTF,,.DOC,.RTF,,2,
EDITIMP3=Lotus 1-2-3 Worksheet,0,_IWKSE,,.WKS,.WK1,.WR1,.WRK,.WK3,.WK4,,4,
EDITIMP4=Lotus PIC,0,_IPIC,,.PIC,,8,
EDITIMP5=CGM Image,0,_IFL,,.GMF,.CGM,,8,
EDITIMP6=TIFF 5.0 Image,0,_ITIFF,,.TIF,,18,
EDITIMP7=BMP Image,0,_IBMP,,.BMP,,18,
EDITIMP8=Ami Pro,0,_IW4W,W4W33F/V0,.SAM,,2,
EDITIMP17=WordPerfect 5.x,0,_IW4W,W4W07F/V1,.DOC,,2,
EDITIMP22=PCX Image,0,_IPCX,,.PCX,,18,
EDITIMP28=Binary with Text,0,_ISTRNGS,,.*,1,
EDITIMP29=WordPerfect 6.0/6.1,0,_IW4W,W4W48F/V0,.WPD,.WPT,.DOC,,2,
EDITIMP30=Excel 4.0/5.0,0,_IW4W,W4W21F/V4C,.XLS,,4,
EDITIMP31=Word for Windows 6.0,0,_IW4W,W4W49F/V0,.DOC,,2,
EDITIMP32=GIF Image,0,_IGIF,,.GIF,,18,
EDITIMP33=JPEG Image,0,_IJPEG,,.JPG,,18,
EDITEXP1=ASCII Text,2,_XTXT,,.TXT,.PRN,.C,.H,.RIP,,1,
EDITEXP2=MicrosoftWord RTF,2,_XRTF,,.DOC,.RTF,,4,
EDITEXP3=CGM Image,2,_XCGM,,.CGM,.GMF,,8,
EDITEXP4=TIFF 5.0 Image,2,_XTIFF,,.TIF,,18,
EDITEXP5=Ami Pro,2,_XW4W,W4W33T/V0,.SAM,,2,
EDITEXP14=WordPerfect 5.1,2,_XW4W,W4W07T/V1,.DOC,,2,
EDITEXP21=WordPerfect 6.0,2,_XW4W,W4W48T/V0,.DOC,,2,
EDITEXP22=WordPerfect 6.1,2,_XW4W,W4W48T/V1,.WPD,.WPT,.DOC,,2,
EDITEXP23=Word for Windows 6.0,2,_XW4W,W4W49T/V0,.DOC,,2,
DDETimeout=10
$$$OpenSpecial=NotesNIC
```

Figure 318 (Part 1 of 2). Notes.ini

```

TCP/IP=TCP, 0, 15, 0
LAN0ip=NETBIOS, 0, 15, 0
LAN1=NETBIOS, 1, 15, 0
VINES=VINES, 0, 15, 0
SPX=NWSPX, 0, 15, 0
AppleTalk=ATALK, 0, 15, 0
LAN2=NETBIOS, 2, 15, 0
LAN3=NETBIOS, 3, 15, 0
LAN4=NETBIOS, 4, 15, 0
LAN5=NETBIOS, 5, 15, 0
LAN6=NETBIOS, 6, 15, 0
LAN7=NETBIOS, 7, 15, 0
LAN8=NETBIOS, 8, 15, 0
COM1=XPC,1,15,0,
COM2=XPC,2,15,0,
COM3=XPC,3,15,0,
COM4=XPC,4,15,0,
COM5=XPC,5,15,0,
Ports=TCP/IP,LAN0ip,LAN1
DisabledPorts=VINES,SPX,AppleTalk,LAN2,LAN3,LAN4,LAN5,LAN6,LAN7,LAN8,COM1,COM2,COM3,COM4,COM5
LOG_REPLICATION=1
LOG_SESSIONS=1
KeyFilename=server.id
CertificateExpChecked=c:\notes\data\server.id 09/04/98
ZONE_SET=1
Timezone=5
DST=1
CertifierIDFile=c:\notes\data\cert.id
MailServer=CN=ntsrv101.itso.ral.ibm.com/O=Itso
Domain=Itso
Admin=CN=Resident/O=Itso
TemplateSetup=15
Setup=51
ServerSetup=8
PhoneLog=2
Log=log.nsf, 1, 0, 7, 40000
DESKWINDOWSIZE=16 23 420 288
MAXIMIZED=1
WinNTIconCommonConfig=Universal
WinNTIconSize=2
WinNTIconPos=2
WinNTIconHidden=0
WinNTIconRect=-1 -1 1025 25
FileDlgDirectory=C:\LOTUSTMP.000
ECLSetup=3
ADMINWINDOWSIZE=32 46 326 453
CONSOLE_Lotus_Domino_Server=80 25 7 0 0 652 331
TivoliAuthentication=844862e7f44000c404f6d0bb28551a74
TivoliPort=3000
ITDServer=ntsrv101.itso.ral.ibm.com
TABIMPORT_HEADERLINES=0
TABIMPORT_FOOTERLINES=0
TABIMPORT_LINESPERPAGE=0
TABIMPORT_VIEWDEFINED=1

```

Figure 318 (Part 2 of 2). Notes.ini

---

## Appendix C. Special Notices

This publication is intended to help technical professional set up and provide applications management for the AMPs that are available with Tivoli IT Director. The information in this publication is not intended as the specification of any programming interfaces that are provided by Tivoli IT Director. See the PUBLICATIONS section of the IBM Programming Announcement for Tivoli IT Director for more information about what publications are considered to be product documentation.

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## Appendix D. Related Publications

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---

### D.1 International Technical Support Organization Publications

For information on ordering these ITSO publications see "How to Get ITSO Redbooks" on page 233.

- *Integration Examples for Tivoli IT Director: A First Look*, SG24-5207-00

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### D.3 Other Publications

These publications are also relevant as further information sources:

- *Microsoft Exchange Server Survival Guide*, Gregg Todd. Sams Publishing
- *Microsoft SQL Server DBA Survival Guide, Second Edition*, Mark Spenik; Orryn Sledge. Sams Publishing.



---

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