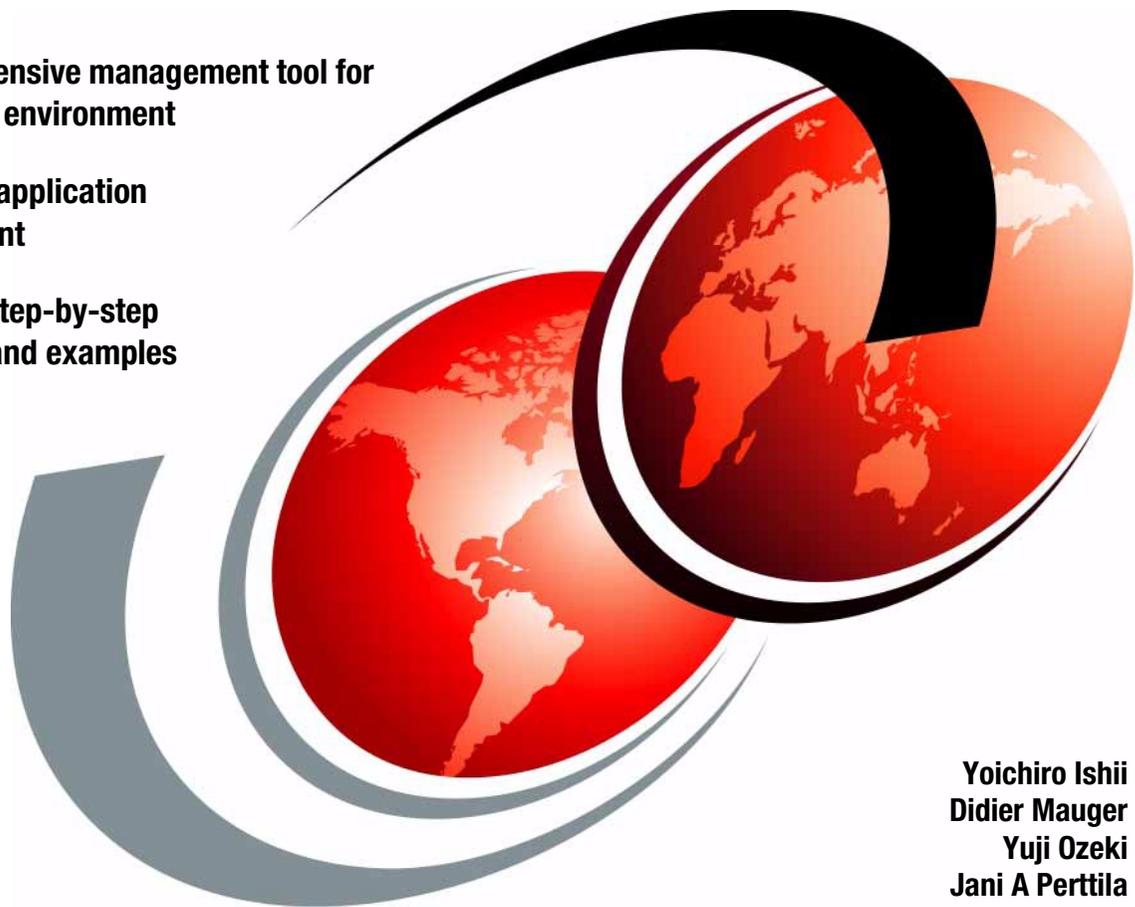*Tivoli*

IBM

Managing AS/400 with Tivoli IT Director

A comprehensive management tool for the AS/400 environment

Integrated application management
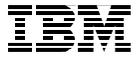
Practical, step-by-step scenarios and examples

Yoichiro Ishii
Didier Mauger
Yuji Ozeki
Jani A Perttila

Redbooks

ibm.com/redbooks

International Technical Support Organization

Managing AS/400 with Tivoli IT Director

May 2000

Contents

Figures

Tables

Preface

With Version 2.11 of Tivoli IT Director, you can now extend your Tivoli small-to-medium sized business solutions to support AS/400s. Sales and services professionals, business partners, and customers need an AS/400-specific redbook to complement the existing Tivoli IT Director documents. This redbook will be used as a primary source of information when starting Tivoli small-to-medium business solutions for AS/400, as well as being a reference in the field by providing technical information and answers in sales situations.

This redbook meets the needs of two audiences:

- Those who know Tivoli IT Director, but do not know AS/400.
- Those who know AS/400, but do not know Tivoli IT Director.

Documentation and examples of the implementation techniques related to managing AS/400s with Tivoli IT Director are covered, including "getting started" examples, as well as more complex examples of the use of Tivoli IT Director that are applicable to AS/400.

The team that wrote this redbook

This redbook was produced by a team of specialists from around the world working at the International Technical Support Organization, Austin Center.

Yoichiro Ishii is an Advisory I/T Specialist working as a project leader at the International Technical Support Organization Tivoli Group, Austin Center. He manages Tivoli projects and develops technical documents, including IBM Redbooks about Tivoli Enterprise and application management topics. Yoichiro now extends his area of expertise to small-to-medium sized business management solutions. He also teaches IBM classes worldwide on all areas of systems management, application management, and network management. Before joining the ITSO in mid-1998, Yoichiro worked at IBM Japan as an I/T Specialist for systems and network management, consulting major IBM customers. In this role, he architected systems management design and solutions for large government projects. He can be reached at ishii@us.ibm.com.

Didier Mauger is a Technical Support Specialist at Service Delivery France. His areas of expertise include AS/400 technical support, as well as system view management. He is also a member of the EMEA AS/400 Mid Range Express core team.

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 "IBM Redbooks review" on page 239 to the fax number shown on the form.

- Use the online evaluation form found at `http://www.redbooks.ibm.com/`

- Send your comments in an Internet note to `redbook@us.ibm.com`

Chapter 1. Introduction

Tivoli IT Director is a highly-integrated systems management application. Version 2.11 of Tivoli IT Director extends the management ability to the AS/400 platform and provides powerful solutions for small-and medium-sized businesses. This redbook enhances your Tivoli small-to-medium business solution design skills for AS/400 systems management and provides examples of implementation and solutions.

1.1 Concept and architecture

Efficient information technology (IT) management is a challenge. As the IT manager for your small-to-medium sized business, you face daily challenges and inefficiencies trying to control all your IT resources.

The right systems management software is the key to total control over your IT environment. You might not realize the amount of money that the lack of comprehensive systems management is costing your company. Moreover, you may not be realizing the true value of information technology to your business without control and efficient management.

IT management means more than automating repetitive tasks. The ability to gain control of your applications, systems, and network allows you to proactively plan for new technology and expanding business requirements. You can make IT a strategic resource for your business. With effective IT management, you can plan for new technology and future corporate growth, remain current on emerging products and computing innovations, and maintain a strategic view of your IT resources.

Tivoli IT Director is the first systems management product designed for the unique needs of small-to-medium businesses with Windows NT or AS/400. Tivoli IT Director puts the IT manager in control of the IT environment, giving him or her accountability and agility. Unlike the other available tools that narrowly focused on other problems, Tivoli IT Director is designed from the ground up for the small business IT manager, providing the optimum balance between breadth and depth of management functions and simplicity. Tivoli IT Director is easy to use and offers many benefits, including:

- Rapid installation
- Intuitive centralized management console
- Comprehensive, integrated, and automated management functions

1

- Snap-in integration with leading business applications and management products
- Rapid return on investment

Tivoli IT Director allows you to view and manage all of your IT resources from an active, Internet-enabled management console. Figure 1 shows the IT Director Management Console.
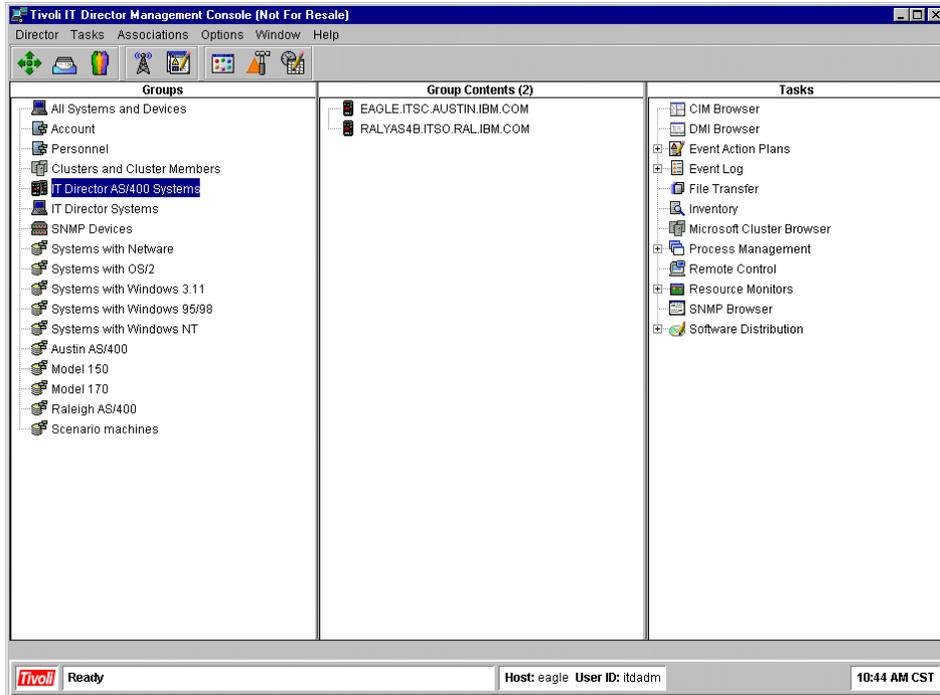
Figure 1. Tivoli IT Director Management Console

The intuitive, integrated management console reduces the need for extensive training and immediately improves administrator productivity. Tivoli IT Director lets you and your administrators manage hundreds of systems centrally and consistently—saving time and money.

Tivoli IT Director reduces not only operator and administrator workload but also setup (installation and configuration) difficulties. Tivoli IT Director includes all management functions that are needed to manage a small-to-medium business. The following shows the management functions that Tivoli IT Director for AS/400 provides:

- Inventory management

- Resource monitoring

- Event management

- Software distribution

- File transfer

- SNMP management

- Process management

- Task scheduler

- Internet services

Note

Tivoli IT Director provides additional management abilities for Windows management agents. Please refer to the *Tivoli IT Director User's Guide*, which is shipped with the product, for more information.

These management functions are highly integrated and enable you to perform seamless management operations. You do not have to install and configure each management function shown above. In other words, the Tivoli IT Director CD-ROM contains these management function modules in a single disk. It simplifies the installation and configuration process.

For example, if a company does not have a DP department but an administrator has to manage all IT resources, Tivoli IT Director can be a powerful solution in this case. This may happen in small-to-medium business environments.

If you consider the total costs of your IT resource management including setup, operator education, and ease-of-use, Tivoli IT Director can be the best answer.

Tivoli IT Director provides a smart management solution for small-to-medium sized businesses.

1.2 Tivoli IT Director and Tivoli Enterprise

Tivoli provides a variety of systems management tools for small-to-large sized businesses. In today's distributed systems environments, customers have a lot of requirements and management environments are complicated. To perform efficient systems management, you need to select and implement proper management tools.

Tivoli has two IT management solutions that allow a variety of customers to manage their IT resources effectively. These IT management solutions are:

- Tivoli IT Director
- Tivoli Enterprise

Figure 2 shows the position of each IT management solution.
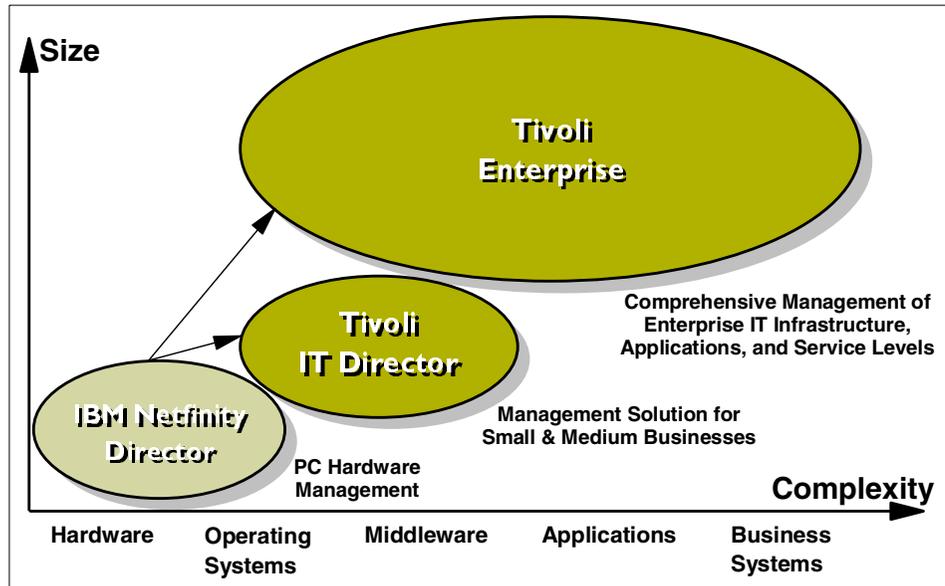
Figure 2. Tivoli IT Director and Enterprise

As you can see, Tivoli IT Director covers small-to-medium environments and Tivoli Enterprise covers medium-to-large environments. Tivoli IT Director will be a powerful IT management solution for:

- Small-to-medium businesses
- Customers without a DP department or sufficient IT administrators
- Managing IT resources at a low cost
- Implementing an IT management system quickly

In this redbook, we primarily introduce detailed information about how to plan for, install, control, configure, and use Tivoli IT Director for AS/400.

1.2.1 About Tivoli Enterprise

Tivoli Enterprise is an IT management solution that allows organizations to centrally manage their entire enterprise, including systems, applications, hardware, and network devices. At the heart of Tivoli Enterprise is a three-tiered architecture, which scales to manage IT environments with thousands to hundreds of thousands of devices, and a powerful, intelligent management agent that quickly detects changes within the environment and brings new devices and software applications under Tivoli management.

We do not explain Tivoli Enterprise later in this redbook. However, if you would like to know more about Tivoli Enterprise, please refer to the following redbook:

- *Managing AS/400 with Tivoli Enterprise*, SG24-5517

This redbook provides detailed information about Tivoli Enterprise and AS/400 systems management.

1.3 AS/400 and Tivoli IT Director

What is AS/400? It is the world's most popular multi-user business computing system, sold in more than 120 countries, enabled in 51 national languages, and installed in 98 percent of Fortune magazine's top 100 companies. The success of AS/400 is mainly due to its low total cost of ownership and high reliability and scalability.

The proper management of an AS/400 should result in a fast, efficient, and reliable system. It should be secure and utilize auditing capabilities if necessary. The Tivoli products for AS/400 introduce a new approach to managing your AS/400s. They bring new functionality and integration to enhance your existing support service.

As networks grow and computing needs become more complex and demanding, the need for centralized management becomes more apparent. A computing platform can no longer be seen as a stand-alone system if it is to be efficiently and cost effectively utilized. Tivoli exploits the concept of central management. It controls the basic and advanced tasks of computer system management in a organization from one central console. Tivoli gives you *"The Power to Manage. Anything. Anywhere."*. Tivoli produces a product, Tivoli IT Director, specifically designed to manage distributed computer systems. Now, Tivoli has extended its array of supported platforms to incorporate the AS/400.

Tivoli IT Director now runs natively on AS/400 servers, providing you the choice to use Windows NT or AS/400 as the primary management server platform. The Tivoli IT Director Management Agent also runs on AS/400 systems as well as the Tivoli IT Director Management Server.

The Tivoli IT Director Management Agent product for AS/400 has a very small storage footprint, so it will not take up large amounts of valuable data storage space on your systems. It includes many advanced functions that can be tailored to meet the needs of your AS/400 environment. The Tivoli IT Director Management Console graphical user interface allows you to perform most functions with a click or drag-and-drop of the mouse.

Now, your computing systems, such as AS/400, Windows, OS/2, and NetWare, can be managed from a central source using a standard interface and a common environment.

1.4 Version 2.11 of Tivoli IT Director

This section addresses the differences between Tivoli IT Director V2.11 and V1.x. It also provides an overview of Tivoli IT Director V2.11.

Naturally, for this book, the most important feature is the addition of AS/400 into the list of supported platforms. Especially since it not only supports the Agent, but also the IT Director Management Server. For the prerequisites for the installation of the software on the AS/400 platform, refer to Chapter 3, "Tivoli IT Director for AS/400: Planning" on page 11.

The database support has also been expanded, most importantly for AS/400, to include IBM DB2 Universal Database Server Version 5.2 support. Therefore, AS/400 is capable of running the IT Director database on its own DB2 Server.

The rest of this redbook primarily introduces detailed information about Version 2.11 of Tivoli IT Director for AS/400.

Chapter 2. Product information

This chapter contains information about the Tivoli IT Director package and features. Reference information and information about future features are also provided.

2.1 Tivoli IT Director package

The Tivoli IT Director package comes with two CD-ROMs, a manual, and a server license key.

CD-ROM2 contains all the necessary files to install the Tivoli IT Director Management Agent, Management Console, and Management Server in an AS/400 environment. CD1 contains the necessary files for other operating systems. This redbook contains setup and management information only for AS/400. For information about other operating systems, please refer to the *Tivoli IT Director User's Guide* or to other documents listed in 2.3, "Related documents and information" on page 8.

The *Tivoli IT Director User's Guide* contains a lot of pertinent information and we often refer to it, so please keep it handy if performing an installation.

The server license key is needed during installation. It will also give you the first 20 client licenses without which you cannot manage any systems.

2.2 Tivoli IT Director for AS/400 product

The Tivoli IT Director Management Server is a multi-purpose tool designed to give you control over machines remotely, provide you with automation options, and give you warning when something is wrong in your environment.

To fully function, the IT Director Management Server needs the IT Director Management Agent software installed on the target machine. Also, some functionality is limited to Windows and OS/2 systems only. Refer to Table 2 on page 20 for a list of features supported under different operating systems.

2.2.1 Integrated Netfinity Server (INS)

If you are running INS in an AS/400 environment, it is good to remember that it supports the Windows NT version of IT Director and not the AS/400 version.

2.3 Related documents and information

In addition to your *Tivoli IT Director User's Guide*, the most valuable source of BM Redbooks. You can find the Redbooks home page at the following URL:

```
http://www.redbooks.ibm.com
```

The following are the URLs of the Tivoli IT Director Redbooks that we refer to:

- *Tivoli IT Director Automation*, SG24-5295

  ```
  http://www.redbooks.ibm.com/abstracts/sg245295.html
  ```

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

  ```
  http://www.redbooks.ibm.com/abstracts/sg245207.html
  ```

- *The AS/400 NetServer Advantage,* SG24-5196

  ```
  http://www.redbooks.ibm.com/pubs/pdfs/redbooks/sg245196.pdf
  ```

Other publications we refer to are as follows:

- *OS/400 Work Management*, SC41-5306
- *AS/400 CL Reference V4R4*, SC41-5722
- *CL Programming V4R4*, SC41-5721
- *TCP/IP Configuration and Reference*, SC41-5420
- *HTTP Server Webmaster's Guide V4R4,* GC41-5434
- *AS/400 System Operation V3.6.0*, SC41-4203
- *OS/400 Backup and Recovery V4R4*, SC41-5304
- *OS/400 Security-Reference*, SC41-5302
- *AS/400 Alerts Support V4R1*, SC41-5413
- *Communications Configuration V4R1*, SC41-5401
- *Basic System Operation, Administration and Problem Handling*, SC41-5206

You can find the AS/400 home page at:

```
http://www.as400.ibm.com
```

2.3.1 How to download IBM Redbooks

This section gives you step-by-step instructions of how to download a redbook onto your computer. Complete the following steps:

1. Go to the home page of the redbook you wish to download.

2. Right-click **View Online**.

Figure 3. Selecting the link

3. Select **Save Link As**.

Figure 4. Starting the "Save Link As..." dialog

4. In the Save As dialog box, choose the directory you wish to save to and click **Save**.
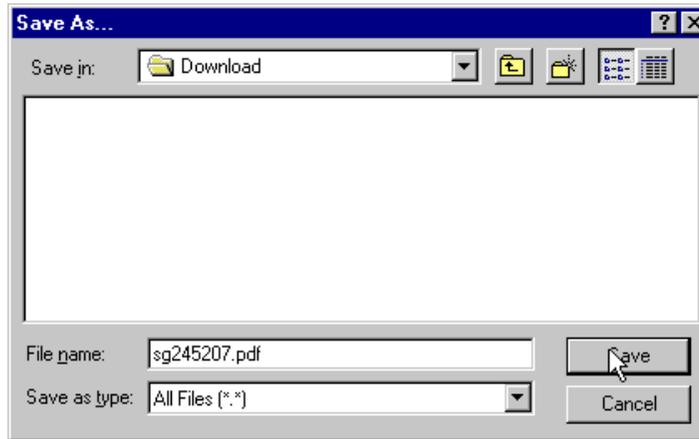
Figure 5. Saving the file

> **Note**
>
> You need to install Adobe Acrobat Reader software on your PC to browse IBM Redbooks and Redpapers.

2.4 Future directions

Tivoli is planning additional support for managing AS/400 systems in the next version of Tivoli IT Director targeted for delivery in the second half of 2000.

For example, you will be able to:

- Automate and schedule software installations on AS/400 systems.
- Monitor jobs and subsystems and have them create alerts (events) if needed.
- Start, stop, and schedule AS/400 jobs.
- Manage applications via AMP support. For example, AMPs for Lotus Domino are being developed.
- Transfer files to and from AS/400 systems.
- Enable Monitoring and event filtering for AS/400 message queues.

The 350 MB memory requirement for Tivoli IT Director Management Server will also be reduced dramatically.

Chapter 3. Tivoli IT Director for AS/400: Planning

This chapter provides information that you should consider before you begin installing and configuring Tivoli IT Director. IT Director provides highly-integrated management across the distributed systems and network. Before installing, you should think about how you will use IT Director and how you want to manage your IT resources in your environment. IT Director is an easy way to improve your IT delivery services and management ability to your IT network. Figure 6 shows an overview of the main functions that IT Director provides for AS/400.
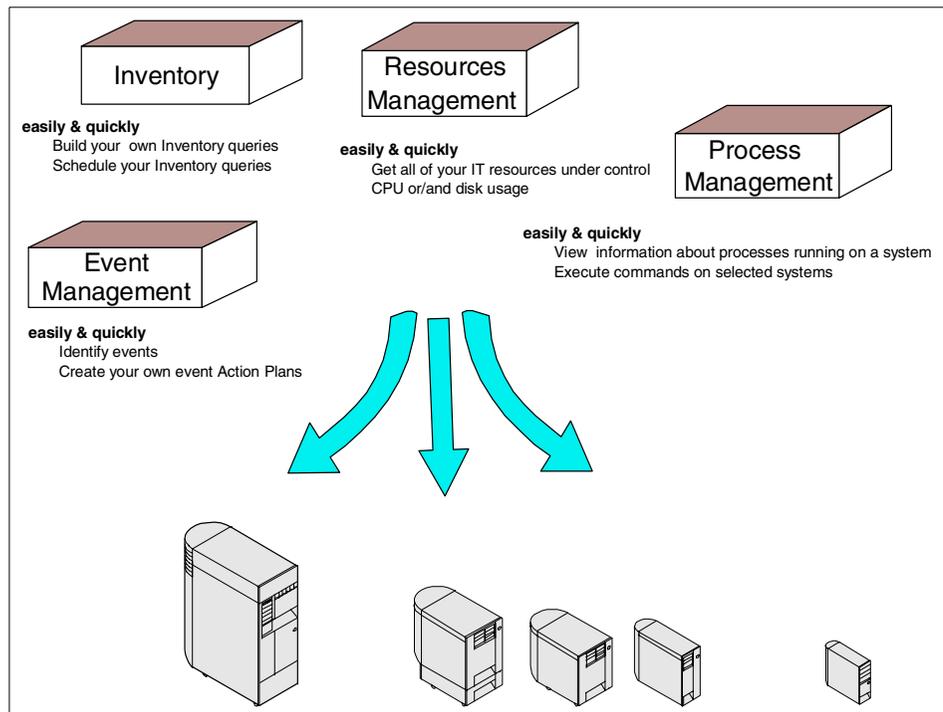
Figure 6. IT Director main functions

When you implement IT Director in your management environment, you need to consider both of the following:

- What do you want to manage?
- What functions does IT Director provide?

The following sections provide planning information related to Tivoli IT Director implementation.

3.1 Implementation planning

To ensure a successful IT Director installation, several prerequisites must be checked before installing the product on your server or agent machines. Figure 7 shows the overview of the IT Director implementation planning processes.
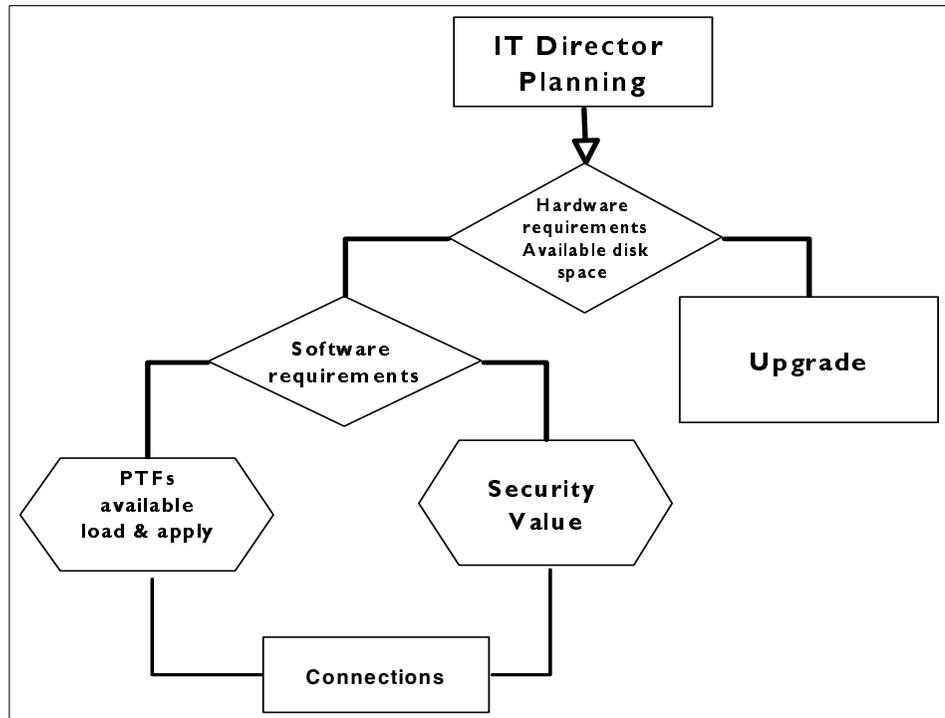
Figure 7. IT Director implementation planning flowchart

As you can see, the following points must be considered when you implement IT Director:

- Hardware requirements
- Software requirements
- Security value
- Connections between the machines

In 3.2.1, "Hardware requirements" on page 13 and 3.2.2, "Software requirements" on page 14, you will find the necessary information about the hardware and software requirements.

3.2 IT Director installation planning

The IT Director Management Server for AS/400 requires, as a minimum, the following hardware and software resources.

3.2.1 Hardware requirements

This section describes the hardware requirements of Tivoli IT Director for AS/400. Since IT Director for AS/400 actually requires a lot of resources (memory and hard disk) to perform properly, we strongly recommend that you configure your IT Director Management Server and Agent machines with sufficient resources.

Table 1 shows the processor features supported for the Tivoli IT Director Management Server.

Table 1. Processor features supported for the IT Director Server for AS/400

AS/400 Model	AS/400 Feature
740	2070, 2069
730	2068, 2067, 2066, 2065
720	2064, 2063
170	2388, 2386, 2385
650	2243, 2240
640	2239, 238
530	2162, 2153, 2152
S40	2261, 2256
S30	2260, 2259, 2258
S20	2166
53S	2157, 2156, 2155

3.2.1.1 Tivoli IT Director Management Server
Before installation, verify the following:

- IT Director Management Server requires only 300 MB of free disk space and the installation image requires an additional 400 MB of temporary storage.

- The user profile used for installation has a value of greater than 440 MB of free disk space for the maximum allowed storage parameter. You need at least 740 MB or greater of free disk space.
- 350 MB of RAM.

If you are not sure, use the DSPUSRPRF command (user ID, the profile used for installation) will show you the maximum storage allowed. This is maximum amount of auxiliary storage that may be used for objects owned by this profile. The value is shown in KB.

3.2.1.2 Tivoli IT Director Management Agent

Installation of IT Director Agent for AS/400 requires 62 MB or greater of free disk space. The agent requires about 10 MB of memory and runs on most processors.

3.2.2 Software requirements

This section describes the software requirements of the Tivoli IT Director for AS/400 Management Server and Management Agent.

3.2.2.1 IT Director Management Server

IT Director Management Server requires the following software:

- AS/400 running OS/400 V4R3 or higher:
  - OS/400 V4R3 requires the following PTFs (or any PTFs that supersede these): MF23380, SF60878, PTFs cumulative package C9341430, and group PTF SF99066.
  - OS/400 V4R4 requires PTF SF56068 (or any PTFs that supersedes SF56068) and the latest group PTF for Java.

If you are installing the Management Server and/or Management Agent on an AS/400 with V4R4, you must have one of the following installed:

- 5769-JV1 (Option 2) Java Developer Kit 1.1.7
- 5769-JV1 (Option 1) Java Developer Kit 1.1.6
- OS/400 (Option 30) OS/400 - QShell Interpreter

If you are hosting the IT Director Web site on the AS/400 Web server for AS/400, the IBM HTTP Server for AS/400 (5769-DG1) must be installed and have access to the file system of the IT Director Management Server.

> **Note**
>
> In OS/400 V4R4, the following PTF is highly recommended to improve Java performance:
>
> 5769-999 MF24006

3.2.2.2 IT Director Management Agent

Before installing, verify the following:

- AS/400 is running OS/400 V4R3 or higher and the latest cumulative PTFs.

- The user profile used for installation has a value of greater than 38 MB of free disk space for the maximum allowed storage parameter.

3.2.3 IT Director Management Console

The IT Director Management Console requires the following hardware and operating systems:

- Windows 95, Windows 98, or Windows NT 4.0 (Workstation or Server with Service Pack 3 or higher)

- Pentium class processor

- 32 MB RAM

- 30 MB free disk space

- TCP/IP networking protocol

- A network adapter that supports the TCP/IP networking protocol

The IT Director Management Console performs all IT Director tasks. The IT Director Management Console can be installed on multiple systems any where you need or want. See Figure 8 on page 16.
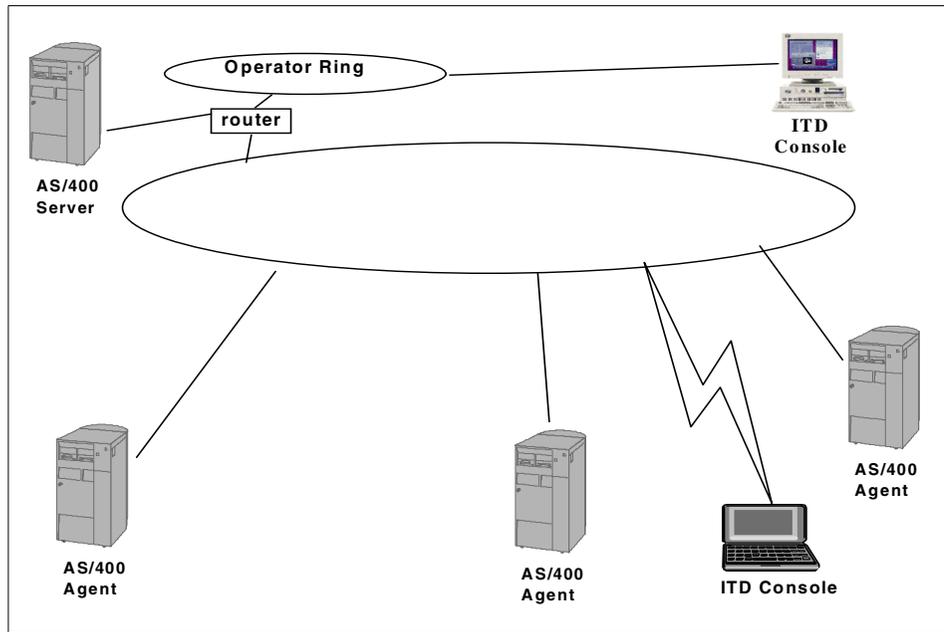
Figure 8. IT Director Management Console use

The IT Director Management Console is your interface into the Tivoli IT Director environment. Your IT Director Management Console can communicate with only one IT Director Management Server at once. Multiple IT Director Management Consoles can be open at the same time.

3.2.4 Security parameters

This section describes the necessary security parameters for Tivoli IT Director.

Note

It is necessary only to grant remote access to users without *ALLOBJ authority.

3.2.4.1 Console authorization for the AS/400 Server

On AS/400, an IT Director administrator is defined as a user profile with at least *USE* authority to the ITDADM authorization list. See Figure 9 on page 17.
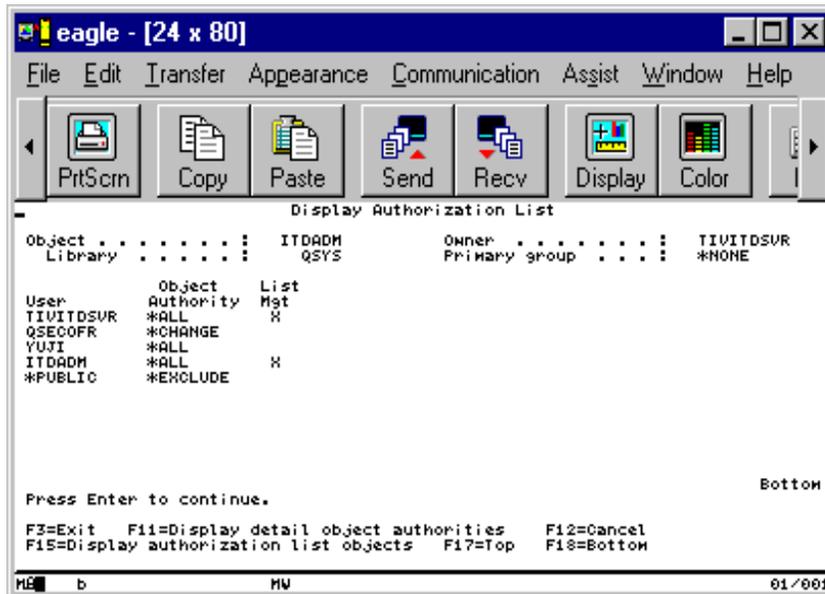
Figure 9. ITDADM Authorization List panel

This authorization list is used by the IT Director Management Server to check authorities of a logon via an IT Director Management Console.

3.2.4.2 IT Director Management Server authorization list TIVITDSVR

An authorization list is created at the installation. To grant users without *ALLOBJ authority access to IT Director Management Server commands, you may add them to the TIVITDSVR authorization list with at least *USE authority.

For the server, on the command line, type:

```
WRAUTL TIVITDSVR
```

Then press **Enter**.

3.2.5 IT Director Agent authorization list TIVITDAGT

As on the server, an authorization list is created on the AS/400 Agent. To grant users without *ALLOBJ authority access to IT Director Agent commands, you may add them to the TIVITDAGT authorization list with at least *USE authority.

For the agent, on the command line, type:

```
WRKAUTl TIVITDAGT
```

Then press **Enter**.

The panel in Figure 10 shows the authorization list.

```
FALCON                                                        _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Work with Authorization Lists

Type options, press Enter.
  1=Create   2=Edit    4=Delete         5=Display   8=Display objects in list
  9=Display documents/folders in list   13=Change description

Opt  List        Text

 2   TIVITDAGT   TIVOLI IT DIRECTOR AGENT



                                                                   Bottom
Parameters for options 1, 5, 8, 9 and 13 or command
===>
F3=Exit     F4=Prompt   F5=Refresh   F9=Retrieve   F11=Display names only
F12=Cancel  F16=Repeat position to   F17=Position to
```

Figure 10. Work with Authorization Lists panel

Select **option 2** to edit the authorization list. When this panel appears, use the F6 function key to add a new user. This object authority user ID must be set to *USE.
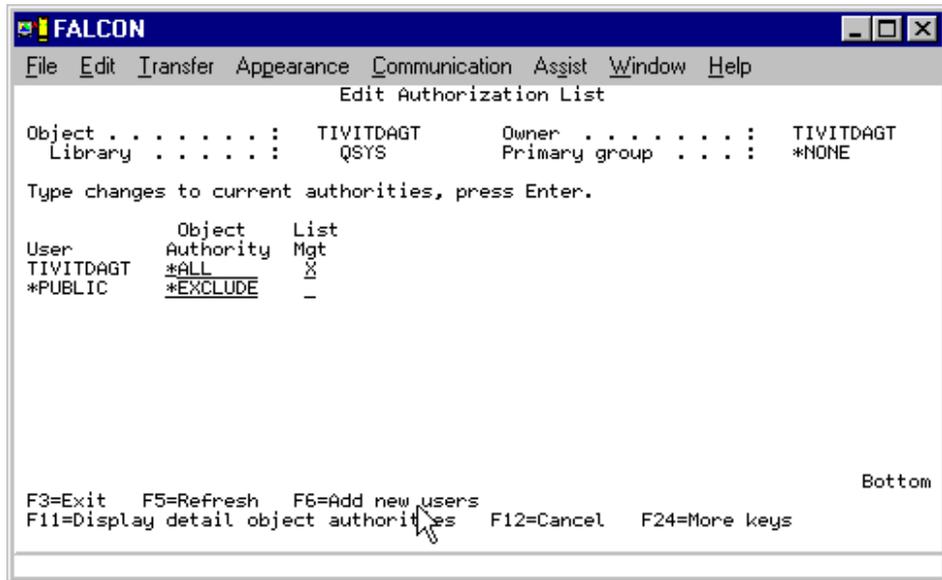
Figure 11. Add a user to an authorization list (1 of 2)

The *USE authority allows access to the object attributes and use of the object. The user cannot change the object.
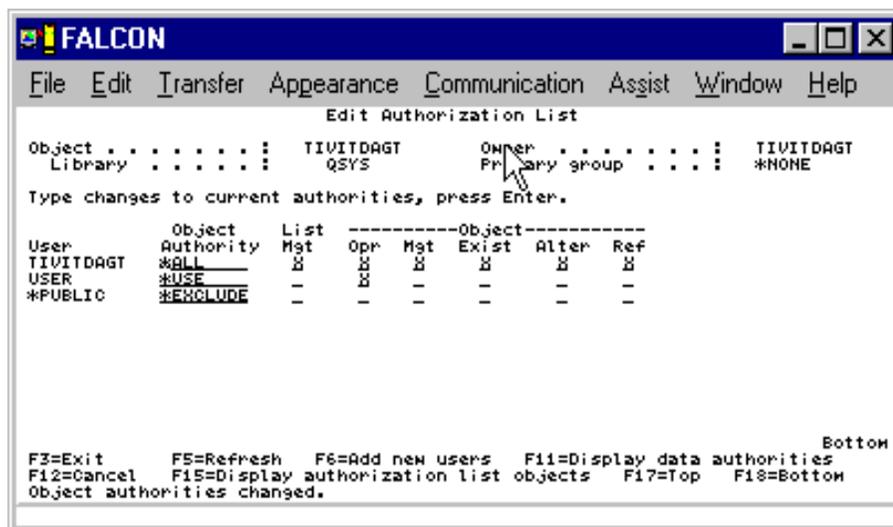
Figure 12. Add a user to an authorization list (2 of 2)

To authorize an AS/400 user to remotely request access to the Tivoli Management Agent via the IT Director Management Server, add the user to the TIVITDAGT authorization list with at least *CHANGE authority.

*CHANGE authority allows a user to request access to the Tivoli Management Agent through IT Director Management Server. Please refer to 4.3.6, "Requesting access to the AS/400 IT Director Agent" on page 55 for more information about the request access function.

3.3 Selecting the necessary IT Director features

A chart of the major functions for IT Director Agents that are available on different operating systems is shown in Table 2.

Table 2. Operating system features comparison

Operating system	AS/400 V4R3 or later	Windows 3.11	Windows 95/98	Windows NT 4.0	OS/2 3.0, 4.0 and Warp server	Novell Netware 3.12, 4.1, 4.11, 5.0
Inventory Management	YES	YES	YES	YES	YES	YES
Remote Control	NO	YES	YES	YES	YES	NO
Resource Monitoring	YES	YES	YES	YES	YES	YES
Event Management	YES	YES	YES	YES	YES	YES
Software Distribution	NO	YES	YES	YES	YES	NO
File Transfer	NO[1]	YES	YES	YES	YES	YES[2]
Process Management	NO[3]	YES	YES	YES	YES	YES
Task Scheduling	YES	YES	YES	YES	YES	YES
Application Management	NO	YES	YES	YES	YES	NO
DMI Management	NO	NO	YES	YES	NO	NO
CMI Management	NO	NO	YES	YES	NO	NO
Cluster Management	NO	NO	NO	YES	NO	NO

Operating system	AS/400 V4R3 or later	Windows 3.11	Windows 95/98	Windows NT 4.0	OS/2 3.0, 4.0 and Warp server	Novell Netware 3.12, 4.1, 4.11, 5.0
MPM Management Client	NO	NO	YES	YES	NO	NO
SNMP Client Management	YES	YES	YES	YES	YES	YES

Notes:
1. File transfer to and from IT Director Management Server is possible, even though server is AS/400.
2. If a NetWare system has DOS drives (A:\, C:\, and so on), these volumes are not displayed in the file system pane.
3. While processes can not be monitored, commands can be sent to AS/400.

Note

Tivoli IT Director provides an Internet services function. This function is not applicable to the IT Director Agent (it is an IT Director Management Server function), so Table 2 does not includes the Internet services function. Please refer to 5.9, "Internet services" on page 137 for more information about Internet services.

As you can see from Table 2, functions, such as MPM Management and DMI Management, are available primarily for desktop machines. Future versions of IT Director will add more functions for AS/400, such as process management and file transfer.

SNMP management is available for every SNMP device and does not require the installation of IT Director Agent software. The following are examples of devices that are usually SNMP-enabled:

- Network printers
- Networking routers
- AS/400 servers

For further information about SNMP management, please refer to Chapter 11 in the *Tivoli IT Director User's Guide*. For more detailed information, refer to the Redbook *Integration examples of Tivoli IT Director: A First look*, SG24-5207, Chapters 1 and 9.

3.3.1 Creating a solution

A flowchart to help you select an appropriate software solution from Tivoli is shown in Figure 13 on page 22.
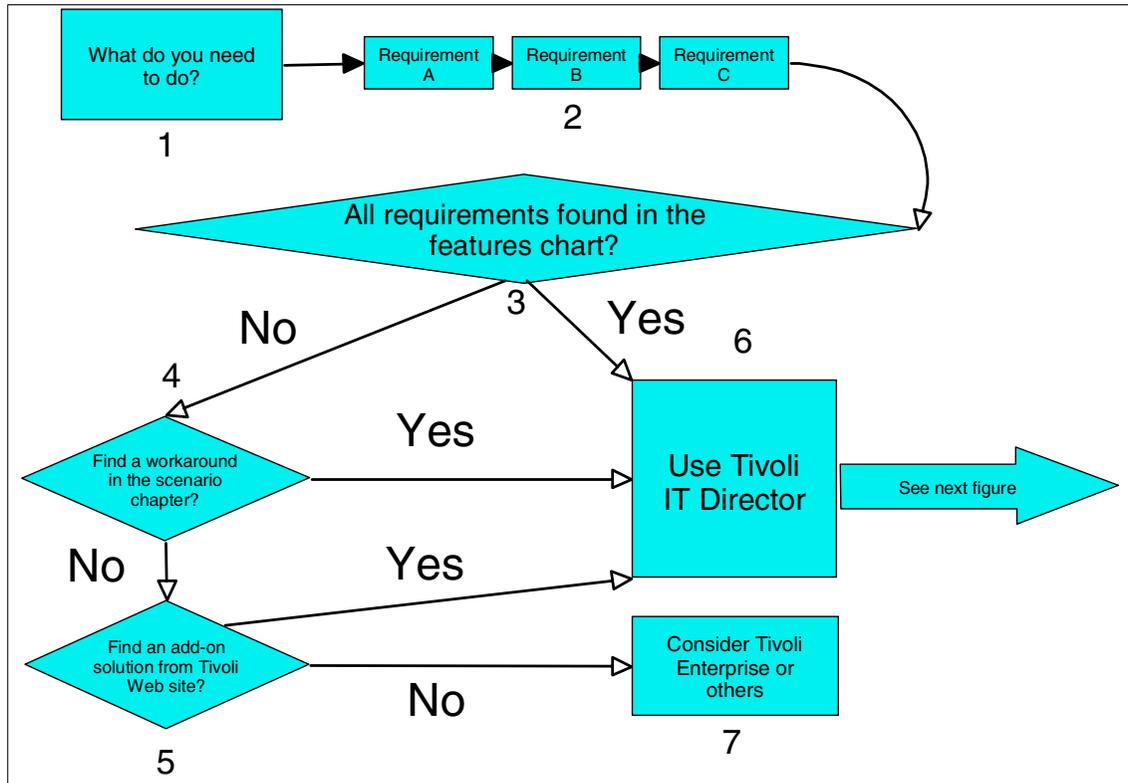
Figure 13. Solution selection flowchart

The flowchart contains seven points; here are some clarifications:

1. Find out what your needs are and what kind of OS environment they have to be addressed in.

2. What are the requirements placed on the software? For example, you might need software distribution, inventory, and event management.

3. Refer to Table 2 on page 20 and see if the features you need are found.

4. If the features you need are not found in the feature chart, refer to the scenario chapter of this redbook (and others mentioned in 2.3, "Related documents and information" on page 8) for a possible workaround.

5. If no solution is found in the scenarios, look for an add-on product that provides the features you need at the Tivoli IT Director Web site:

   `http://www.tivoli.com/products/index/it-director/`

6. If you answered *Yes* at any of the points between three and five, your best choice is the Tivoli IT Director. See Figure 14 for a management scenario flowchart.

7. In this case, Tivoli Enterprise may be a solution for managing your environment. Refer to the Tivoli Web site at:

   `http://www.tivoli.com/`

   And also refer to the redbook *Managing AS/400 with Tivoli Enterprise*, SG24-5517

A simple flowchart demonstrating how to create solutions for Tivoli IT Director is shown in Figure 14.
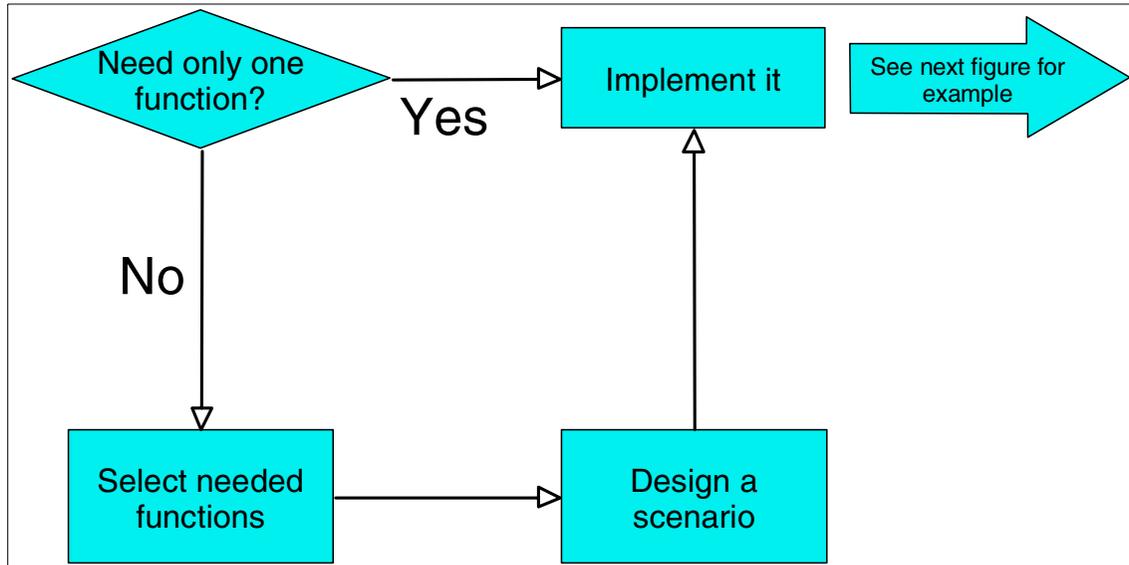
Figure 14. Solution design flowchart

As you can see in Figure 14, if you need only one function (such as Inventory or Remote Control), it can be implemented right away without creating a scenario to coordinate several functions working together.

On the other hand, if you need to create something more complex (such as Web site-based event monitoring for resources), you should first select the functions needed, then decide the order and the way in which the functions should be utilized. An example of this is shown in Figure 15.
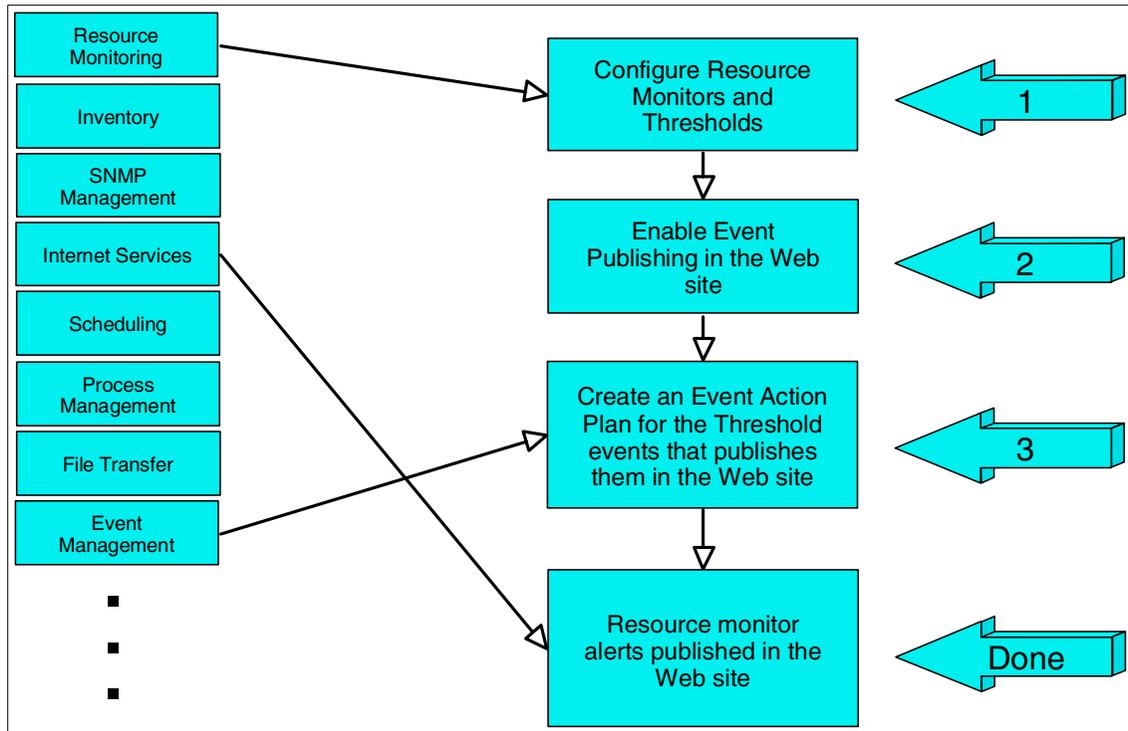
Figure 15. Creating your own scenario

With a scenario that has been planned beforehand, you can save time (and, therefore, money) in implementing IT Director solutions. So, even if you know how to use each individual function, plan ahead when mixing them.

3.4 Miscellaneous

If the IT Director Management Console is installed on a system that has AS/400 Client Access installed (AS/400 Client Access Express for Windows or Client Access for Windows 95/NT V4R4), the IT Director plug-in is added to the Operations Navigator. Figure 16 on page 25 shows the plug-in that is added into the Operations Navigator of the IT Director Management Console.
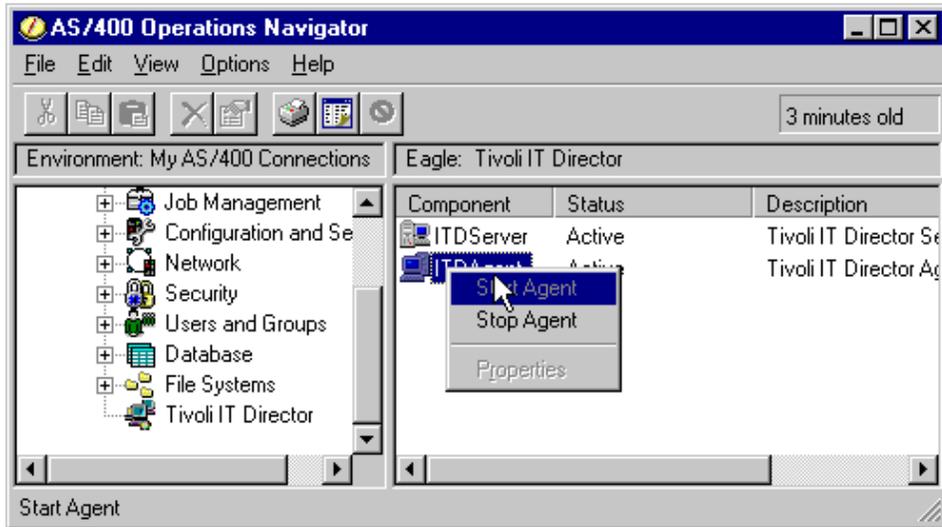
Figure 16. View from the AS/400 Operations Navigator: Tivoli IT Director plug-in

This plug-in allows you to use the Operations Navigator functions listed below:

- IT Tivoli Director Management Server (check status, start, end)

- Tivoli Management Agent (check status, start, end)

Please refer to *Tivoli IT Director User's Guide* for more information about using the AS/400 Client Access plug-ins.

Chapter 4. IT Director for AS/400: Installation and configuration

This chapter describes how to install and configure Tivoli IT Director for AS/400. We also discuss its basic operations on AS/400. This chapter provides the following information:

- Creating an IT Director environment.

- The difference between AS/400 and Windows platforms when installing and configuring IT Director.

- Installing and configuring the Tivoli IT Director for AS/400 even if you are unfamiliar with the AS/400 environment.

- Uninstalling Tivoli IT Director components.

In this chapter, a sample environment is created as shown in Figure 17.
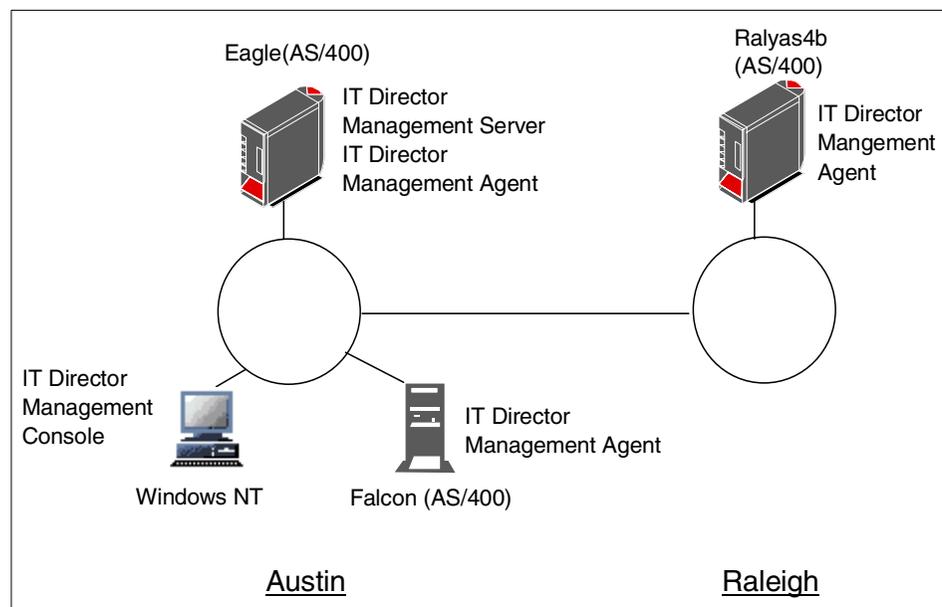
Figure 17. Sample environment

Before starting the installation and configuration, check the prerequisites for the IT Director Management Server and Agent. Refer to Chapter 3, "Tivoli IT Director for AS/400: Planning" on page 11 and the *Tivoli IT Director User's Guide* for more information about IT Director installation planning.

4.1 Installing the IT Director Management Server

The following sections provide information about the installation and basic operation of the IT Director Management Server for AS/400 and also provide tips and considerations about the Tivoli IT Director Management Server environment. The following is an overview of the IT Director Management Server installation process:

1. Server software installation

2. Server settings

3. Start server

4. Stop server

The following sections provide detailed information about each installation step.

4.1.1 Installing the IT Director Management Server software

This section describes how to install IT Director Management Server for AS/400 software in your AS/400 machine. You need to perform the following steps:

1. Insert CD2 (for AS/400 software) into the AS/400 CD-ROM drive.

2. Sign on to your AS/400 system. At this time, the user profile should have user class *SECOFR authority. Ask your AS/400 administrator if you are not sure about the level of authority.

3. On the AS/400 command line, type the LODRUN command and press the **F4** key. See Figure 18 on page 29.

```
EAGLE                                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
MAIN                              AS/400 Main Menu
                                                         System:    EAGLE
Select one of the following:

      1. User tasks
      2. Office tasks
      3. General system tasks
      4. Files, libraries, and folders
      5. Programming
      6. Communications
      7. Define or change the system
      8. Problem handling
      9. Display a menu
     10. Information Assistant options
     11. Client Access/400 tasks

     90. Sign off

Selection or command
===> lodrun


F3=Exit    F4=Prompt    F9=Retrieve    F12=Cancel    F13=Information Assistant
F23=Set initial menu

MA█     a                 MW                                       20/013
```

Figure 18. The LODRUN command

4. In the next screen, enter the device (*OPT for CD-ROM) and directory (for example, the /server/os400/v4r4/en directory for OS/400 V4R4 English Version). Refer to Figure 19 on page 30. This sample is based on the OS/400 V4R4 English Version. If you have installed any other OS/400 versions/releases (V4R3 being the only other choice at the moment), or other National Language Versions, refer to Chapter 3 of the *Tivoli IT Director User's Guide*.

```
EAGLE                                                              _□×

File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Load and Run (LODRUN)

Type choices, press Enter.

Device . . . . . . . . . . . . . > *OPT         Name, *TAP, *DKT, *OPT
Directory  . . . . . . . . . . . > /server/os400/v4r4/en
_____

_____
_____


                                                              Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys

MA    c                                                          06/058
```
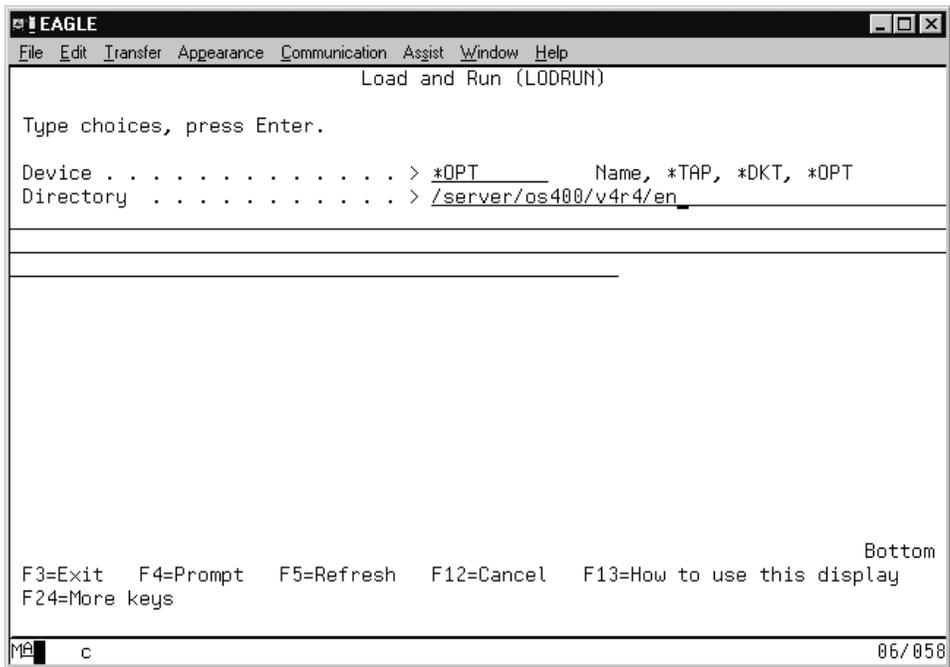
Figure 19. The LODRUN command parameters

5. After entering the information, press **Enter** to start the installation. See
   Figure 20 on page 31. After the `Decompressing block # of ##` countdown
   has finished, the installation is complete.

```
EAGLE                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                     Load and Run (LODRUN)

Type choices, press Enter.

Device . . . . . . . . . . . . . . > *OPT        Name, *TAP, *DKT, *OPT
Directory  . . . . . . . . . . .   /server/os400/v4r4/en
_____
_____

_____




                                                          Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
Decompressing block 4 of 44
MA█    a ✕ SYSTEM        MW                                    06/037
```

Figure 20. Installation processing

6. After the installation, you can check whether the software was installed
   successfully. Type the DSPSFWRSC command, then press **Enter**. If the IT
   Director Management Server for AS/400 software has been installed
   successfully, you can find an entry for the IT Director Management Server
   (1ITDSVR). See Figure 21 on page 32.

```
EAGLE                                                              _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                         Display Software Resources
                                                      System:    EAGLE
Resource
   ID     Option  Feature  Description
5769SS1   31      2924     OS/400 - Domain Name System
5769SS1   32      5050     OS/400 - Directory Services
5769SS1   32      2924     OS/400 - Directory Services
5769SS1   34      5050     OS/400 - Digital Certificate Manager
5769SS1   34      2924     OS/400 - Digital Certificate Manager
1ITDSVR   *BASE   5001     Tivoli IT Director Server 2.11 for AS/400
1ITDSVR   *BASE   2924     Tivoli IT Director Server 2.11 for AS/400
5769AS1   *BASE   5050     IBM WebSphere Application Server
5769AS1   *BASE   2924     IBM WebSphere Application Server
5769DG1   *BASE   5050     IBM HTTP Server for AS/400
5769DG1   *BASE   2924     IBM HTTP Server for AS/400
5769JC1   *BASE   5050     AS/400 Toolbox for Java
5769JC1   *BASE   2924     AS/400 Toolbox for Java
5769JV1   *BASE   5050     AS/400 Developer Kit for Java
                                                              More...
Press Enter to continue.

F3=Exit   F11=Display libraries/releases    F12=Cancel
F19=Display trademarks

MA   a                 MW              A                      01/001
```

Figure 21. The DSPSFWRSC command

4.1.2 Configuring the IT Director Management Server on AS/400

After installing the IT Director Management Server for AS/400 software, you
need to configure and customize the server before starting it. The overview of
this procedure is as follows:

- Set Tivoli IT Director Management Server attributes.

- Set the user profile that will be used as the Tivoli IT Director default user
  profile.

Note

On AS/400, the default user profile value configured for the IT Director
Management Server with the Change IT Director Server Attributes
(CHGITDSVRA) command requires *ALLOBJ special authority.

The following sections provide detailed information about the configuration
and customization of the IT Director Management Server for AS/400.

4.1.2.1 The CHGITDSVRA command

First, you should change the IT Director Management Server attribute information. On command line, type the `CHGITDSVRA` command and press the **F4** key. Then, type in your choices for each attribute. Refer to Figure 22. For more information about the meaning of each parameter, refer to Chapter 3 of the *Tivoli IT Director User's Guide*.

Note

Unless you input the Server License Key information, you can not start the IT Director Management Server.

```
▣ ▌ EAGLE                                                   _ □ ✕
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                 Change ITD Server Attributes (CHGITDSVRA)

 Type choices, press Enter.

 Autostart  . . . . . . . . . . .    *NO__        *SAME, *YES, *NO
 Default User Profile . . . . . .    QSECOFR__    Character value
 Time zone  . . . . . . . . . . .    CST_____    *SAME, *LOCALE, GMT, UTC...
 Server License Key:                     _
   Key Positions 1-4  . . . . . .    1I3J         Character value
   Key Positions 5-8  . . . . . .    49QF         Character value
   Key Positions 9-12 . . . . . .    TFM7         Character value
   Key Positions 13-16  . . . . .    ____         Character value
   Key Positions 17-20  . . . . .    ____         Character value
                  + for more values _


                                                            Bottom
 F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
 F24=More keys

 MA█    a                                                    12/037
```

Figure 22. The CHGITDSVRA command

4.1.2.2 The ADDAUTLE command

Before this operation, you should decide what AS/400 user profile will be used for the IT Director administrator and super administrator. Type the `ADDAUTLE` command and press the **F4** key. The command prompt screen will be displayed and you can input information. After you have input the necessary information, press **Enter**. See Figure 23 on page 34.

> **Note**
>
> In this example, the QSECOFR user profile is used as the Tivoli IT Director super administrator. However, the QSECOFR is a special user profile to manage the AS/400 system. Therefore, we recommend that you create a new AS/400 user profile with sufficient authority to manage AS/400 resources and assign this user profile for only IT Director use.

Giving a user *USE authority grants administrator authority, and giving a user *CHANGE authority grants super-administrator authority.

For more detailed information, refer to the *Tivoli IT Director User's Guide*. Also refer to the AS/400 manual *AS/400 Security - Basic V4R5*, SC41-5301, for more information about the authorization list (that concern the ADDAUTLE command).

```
EAGLE                                                          _ □ ×
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                  Add Authorization List Entry (ADDAUTLE)

 Type choices, press Enter.

 Authorization list . . . . . . .    itdadm       Name, generic*
 User . . . . . . . . . . . . . .    qsecofr      Name
              + for more values      _____
 Authority  . . . . . . . . . .      *CHANGE      *EXCLUDE, *CHANGE, *ALL...
              + for more values      _____




                                                              Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys

 MA  ▮   a              MW                                    06/044
```
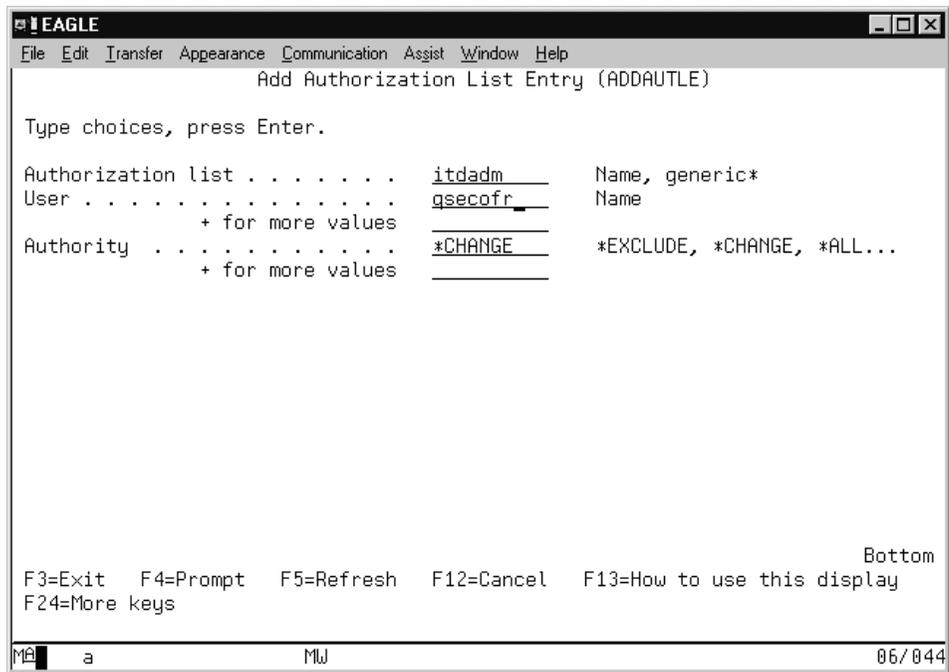
Figure 23. The ADDAUTLE command

> **Note**
>
> After you added a user profile to the authority list using the `ADDAUTLE` command, this user profile is added to Console Security with super-user authority. If you add the IT Director User Account from Console Security, that user is not added to the authority list on AS/400. For detailed information about Console Security, refer to the *Tivoli IT Director User's Guide*.

4.1.3 Starting IT Director Management Server on AS/400

After installation and configuration, you can start the IT Director Management Server on your AS/400 system. To start the server process, type the `STRITDSVR` command and press **Enter**. See Figure 24.

```
EAGLE                                                         _ □ ✕
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
 MAIN                         AS/400 Main Menu
                                                        System:    EAGLE
 Select one of the following:

        1. User tasks
        2. Office tasks
        3. General system tasks
        4. Files, libraries, and folders
        5. Programming
        6. Communications
        7. Define or change the system
        8. Problem handling
        9. Display a menu
       10. Information Assistant options
       11. Client Access/400 tasks

       90. Sign off

 Selection or command
 ===> stritdsvr_
 _____
 F3=Exit    F4=Prompt    F9=Retrieve    F12=Cancel    F13=Information Assistant
 F23=Set initial menu

 MA     a             MW                                          20/016
```

Figure 24. The STRITDSVR command

> **Note**
>
> It may take several minutes to start the IT Director Management Server completely, especially when the server initially starts. If the server is not started completely, you will experience a failure when trying to log in to the console.
>
> The message ITD1013 gets sent to the QSYSOPR message queue when the IT Director Management Server is ready for console login.

4.1.4 Stopping IT Director Management Server on AS/400

To stop the IT Director Management Server on your AS/400, type the `ENDITDSVR` command on the AS/400 command line, then press **Enter**. The stopping server process runs immediately.

4.1.5 Tips and considerations

When installing the IT Director Management Server for AS/400, there are some tips and considerations for the AS/400 environment. The following sections introduce these tips and considerations.

Name resolution

Since the IT Director Management Server sometimes searches the IT Director Management Agent using a host name (for example, if you use TCPIP::HOSTNAME in event action plans to designate a target system for a task), TCP/IP name resolution (DNS, host file), or the use of an IP address, is required in some cases. Refer to the *TCP/IP Configuration and Reference V4R4*, SC41-5420, for more detailed information about AS/400 TCP/IP configurations.

Time zone

The IT Director Management Server refers to the AS/400 system value QUTCOFFSET. The default value is +0000 (which means UTC). You can check the current value using the `DSPSYSVAL QUTCOFFSET` command. If you want to set another value, type the `CHGSYSVAL QUTCOFFSET` command and press the **F4** key, then input the proper value and press **Enter**. See Figure 25 on page 37.

```
EAGLE                                                          _ □ X
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Change System Value (CHGSYSVAL)

Type choices, press Enter.

System value . . . . . . . . . . > QUTCOFFSET    QACGLVL, QACTJOB, QADLACTJ...
New value  . . . . . . . . . . . > -0600_____




















                                                                    Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys

MA█   a                                                            06/042
```
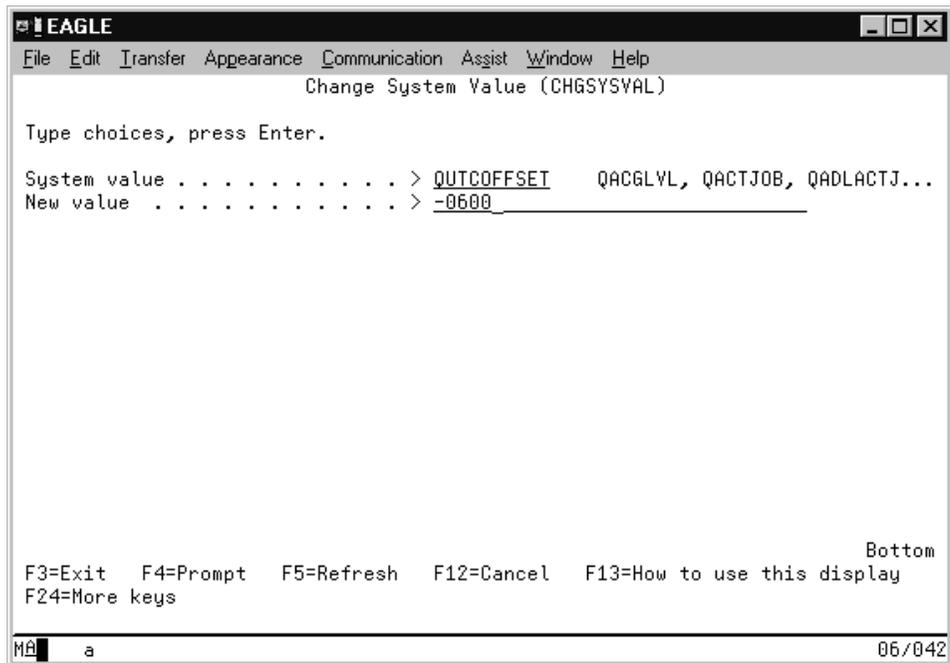
Figure 25. The CHGSYSVAL command

Refer to *OS/400 Work Management*, SC41-5306, for more detailed
information about AS/400 system values.

4.2 Installing the IT Director Management Console

You need to install the IT Director Management Console software on a
Windows machine (Windows NT, Windows 95/98).

The following sections provide information about installing IT Director
Management Console software on a Windows machine and logging on to the
IT Director Management Server.

4.2.1 IT Director Management Console installation

The actual installation process of the IT Director Management Console has
nothing to do with AS/400. Refer to Chapter 3 of the *Tivoli IT Director User's
Guide* for detailed information about the installation process.

If you are using AS/400 Client Access (AS/400 Client Access Express for
Windows or AS/400 Client Access for Windows 95/NT V4R4) and Operations

Navigator on a PC where you intend to install IT Director Management
Console, the AS/400 Client Access plug-in will be installed automatically. This
plug-in enables you to manage the IT Director Management Server and
Agent. See Figure 26.

The available functions through the plug-in are:

- Start Server/Agent
- Stop Server/Agent
- Check status of Server/Agent
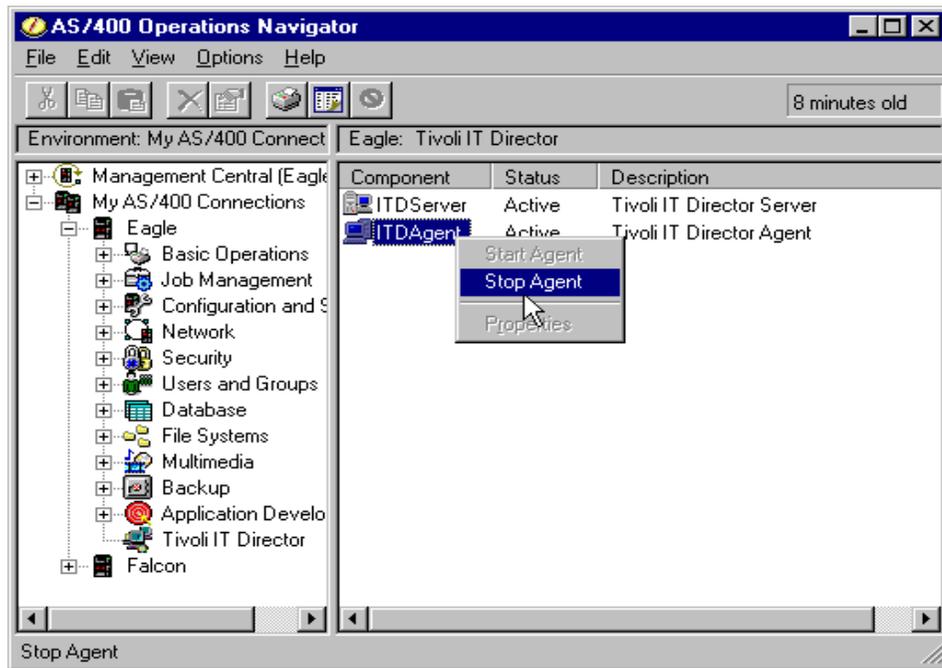
Figure 26. Client Access plug-in

If you install the AS/400 Client Access plug-in after the IT Director
Management Console installation, the plug-in is not added automatically. In
this case, utilizing the plug-in will require some extra settings. Refer to the
Tivoli IT Director User's Guide for more detailed information.

4.2.2 Logging into the IT Director Management Server

After the IT Director Management Console installation, you can connect and
log in to the IT Director Management Server. See Figure 27 on page 39.

Refer to Chapter 4 of the *Tivoli IT Director User's Guide* for more detailed information.

Figure 27. IT Director Management Server login screen

Note

When you log in to the IT Director Management Server, use the user ID and password that you have been authorized for by the `ADDAUTLE` command on the AS/400 system. If you use a different user ID and password, the login process will fail due to the authorization. Refer to 4.1.2.2, "The ADDAUTLE command" on page 33 for more detailed information.

4.3 Installing and configuring the IT Director Management Agent

This section provides information about the installation and configuration of the IT Director Management Agent on AS/400. The following is an overview of the IT Director Agent installation and configuration procedure:

- Install the Tivoli Management Agent software on local AS/400.
- Install the Tivoli Management Agent software on remote AS/400.
- Configure the Tivoli Management Agent.
- Start the Tivoli Management Agent.
- Stop the Tivoli Management Agent.
- Un-secure the Tivoli Management Agent.

The following sections describe the details about the installation and configuration of the IT Director Agent on AS/400 systems.

4.3.1 Installing Tivoli Management Agent software on local AS/400

In most of customers' management environments, you should assume two different types of installation as follows:

- Local installation
- Remote installation

Figure 28 shows a typical example of a customer's AS/400 management environment.
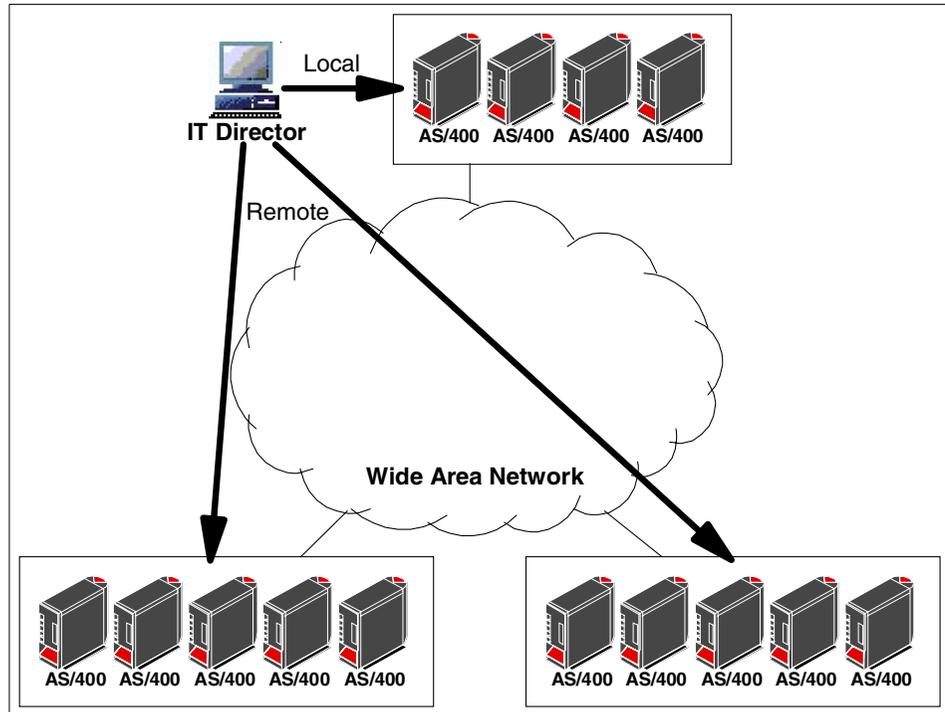
Figure 28. Local systems management and remote systems management

If all managed resources are located in the same place (for example, the same building or same site), you do not have to perform the remote installation. However, recently, the management environment has been getting bigger, and normally, customers must manage some AS/400 systems remotely. In this redbook, we introduce both ways—the local installation and remote installation of IT Director Management Agent software on the AS/400 system.

The following is an overview of the IT Director Agent local installation procedure:

1. Insert CD2 (for AS/400 software) into the AS/400 CD-ROM drive.

2. Sign on to your AS/400. At this time, the user profile should have user class *SECOFR authority. Ask your AS/400 administrator if you are unsure about the level of authority.

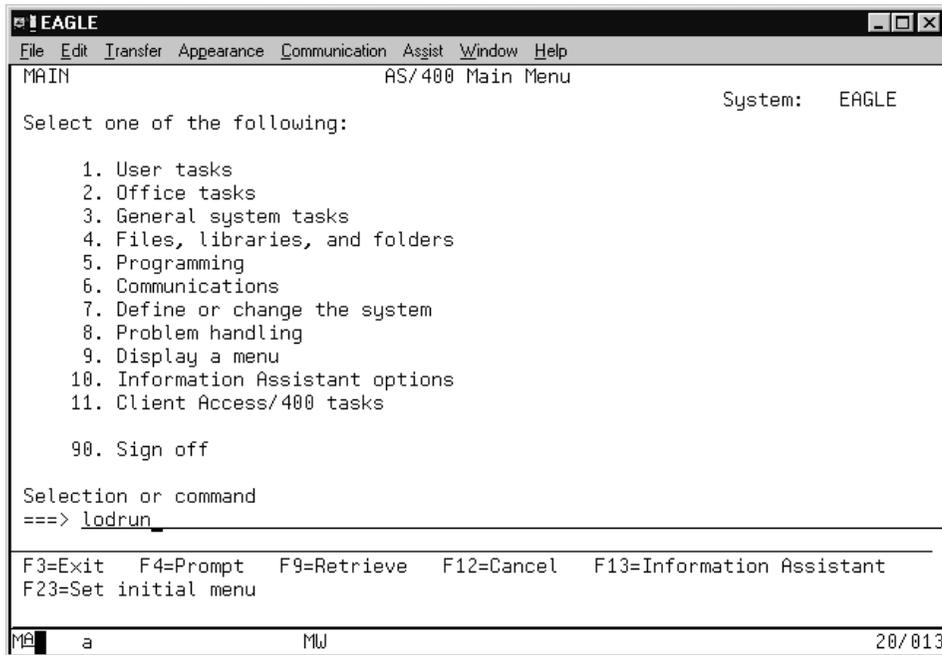3. On the AS/400 command line, type the LODRUN command and press the **F4** key.

4. In the next screen, enter the device (*OPT for CD-ROM) and directory (for example, the /agent/os400/v4r4/en directory for the OS/400 V4R4 English Version) as shown in Figure 29. This example is based on the OS/400 V4R4 English Version. If you have installed any other OS/400 versions/releases (V4R3 being the only other choice right now), or other National Language Versions, refer to Chapter 3 of the *Tivoli IT Director User's Guide* for more detailed information.

```
■ I FALCON                                                        _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                           Load and Run (LODRUN)

 Type choices, press Enter.

 Device . . . . . . . . . . . . . > *OPT_____    Name, *TAP, *DKT, *OPT
 Directory  . . . . . . . . . .    /agent/os400/v4r4/en_




 _____




                                                            Bottom
 F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
 F24=More keys

MA   b                                                          06/057
```
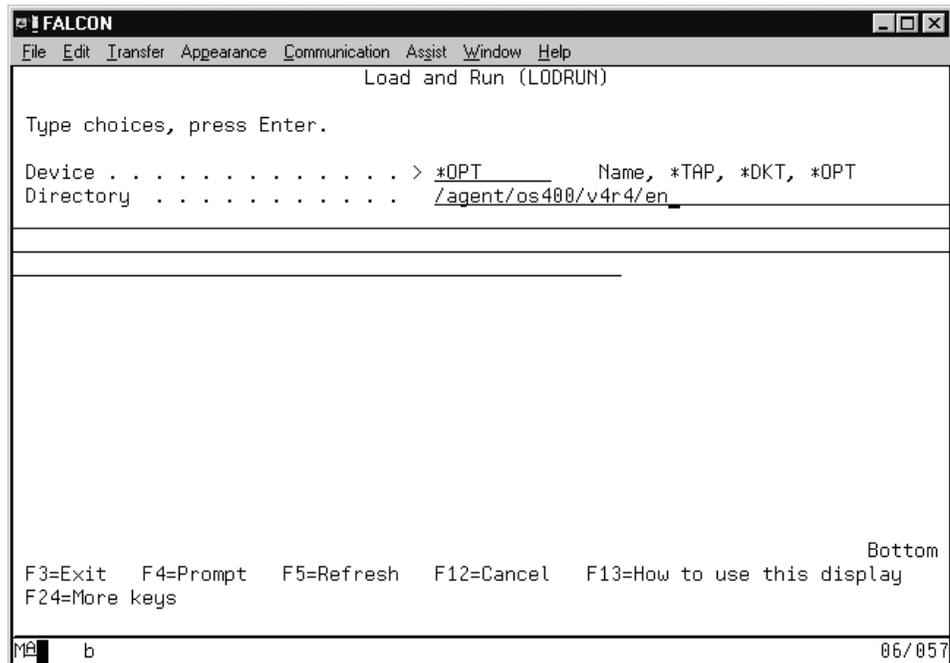
Figure 29. The LODRUN command prompt

5. After entering the information, press **Enter** to start the installation. After the Decompressing block # of ## countdown has finished, the installation is complete.
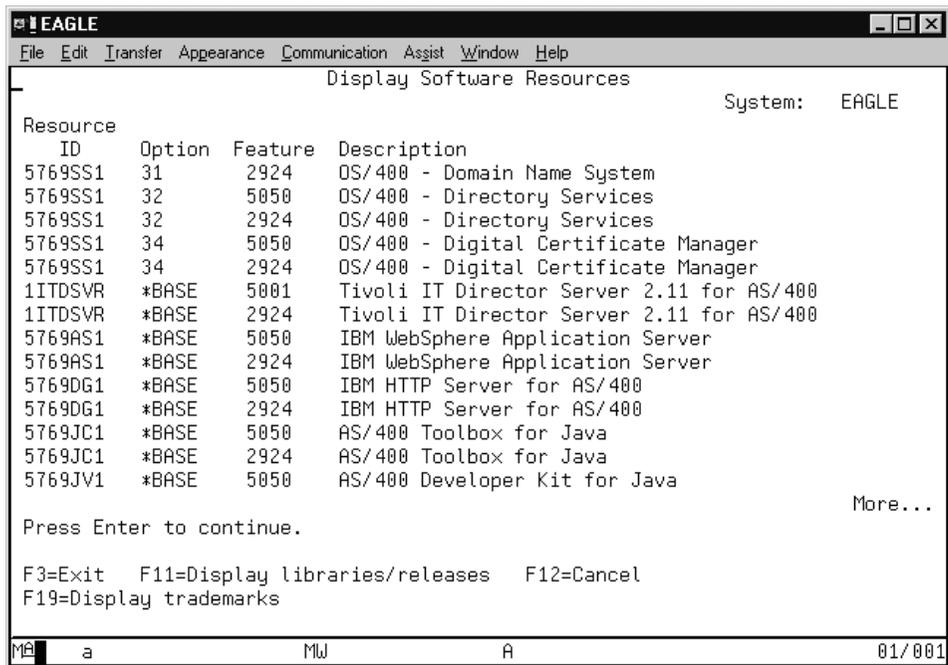
6. After the installation, you can check whether the software has been successfully installed. Type the `DSPSFWRSC` command, then press **Enter**. If the software has been installed successfully, you can find an entry about the IT Director Agent (1ITDAGT) as shown in Figure 30.

```
█ █ FALCON                                                        _ □ ×
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
 _                       Display Software Resources
                                                    System:    FALCON
 Resource
    ID     Option   Feature   Description
 5769SS1    33       5111     OS/400 - Private Address Space Environment
 5769SS1    34       5050     OS/400 - Digital Certificate Manager
 5769SS1    34       2924     OS/400 - Digital Certificate Manager
 5769SS1    35       5050     OS/400 - Cryptographic Service Provider
 5769SS1    35       2924     OS/400 - Cryptographic Service Provider
 5769SS1    36       5112     OS/400 - PSF/400 1-20 IPM Printer Support
 5769SS1    37       5113     OS/400 - PSF/400 1-45 IPM Printer Support
 5769SS1    38       5114     OS/400 - PSF/400 Any Speed Printer Support
 1ITDAGT   *BASE     5001     Tivoli IT Director Agent 2.11 for AS/400
 1ITDAGT   *BASE     2924     Tivoli IT Director Agent 2.11 for AS/400
 1TMELCF   *BASE     5001     TME 10 Endpoint 3.6.1 for AS/400
 1TMELCF   *BASE     2924     TME 10 Endpoint 3.6.1 for AS/400
 5716CL1   *BASE     5050     ADTS CS/400
 5716CL1   *BASE     2924     ADTS CS/400
                                                               More...
 Press Enter to continue.


 F3=Exit   F11=Display libraries/releases    F12=Cancel
 F19=Display trademarks

 MA█   b                                                      01/001
```

Figure 30. The DSPSFWRSC command

> **Note**
>
> If you have installed the Tivoli IT Director Management Agent, the Tivoli endpoint is also installed automatically.
>
> Please refer to *Managing AS/400 with Tivoli Enterprise*, SG24-5517 for more detailed information about Tivoli Enterprise and Tivoli for AS/400 endpoints.

4.3.2 Installing Tivoli Management Agent software on remote AS/400

In our project, we installed the Tivoli Management Agent software to the local AS/400 machine (Falcon) first, and then installed the Tivoli Management Agent software to the remote AS/400 machine (Ralyas4b), which is located in Raleigh, North Carolina. See Figure 31 on page 43.
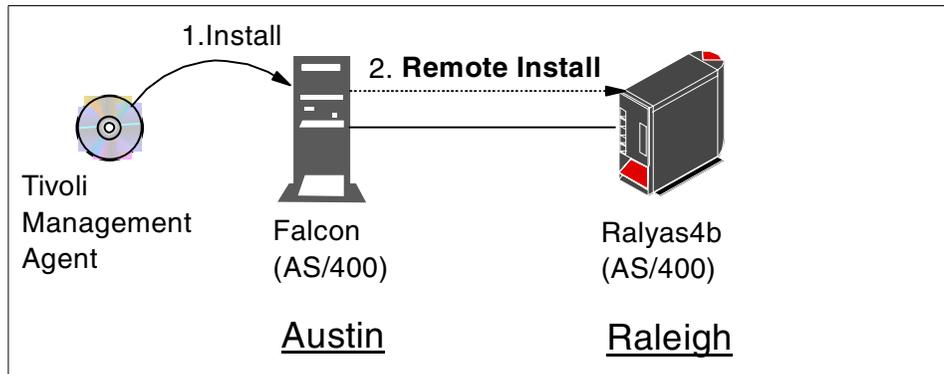
Figure 31. Remote installation in our test environment

Complete the following steps:

1. First, you need to complete the installation of the Tivoli Management
   Agent on a local AS/400 machine (Falcon). Refer to 4.3.1, "Installing Tivoli
   Management Agent software on local AS/400" on page 40 for more
   detailed information about local installation.

Note

If you have already started Tivoli Management Agent, you need to stop the
Agent process. To stop it, type the `ENDITDAGT` command and press **Enter**.

See Figure 32 on page 44.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▪▪▌FALCON                                                   _ □ ×     │
│ File  Edit  Transfer  Appearance  Communication  Assist  Window  Help │
│ MAIN                           AS/400 Main Menu                       │
│                                              System:    FALCON        │
│  Select one of the following:                                         │
│                                                                       │
│      1. User tasks                                                    │
│      2. Office tasks                                                  │
│      3. General system tasks                                         │
│      4. Files, libraries, and folders                                │
│      5. Programming                                                   │
│      6. Communications                                               │
│      7. Define or change the system                                  │
│      8. Problem handling                                             │
│      9. Display a menu                                               │
│     10. Information Assistant options                                │
│     11. Client Access/400 tasks                                     │
│                                                                       │
│     90. Sign off                                                     │
│                                                                       │
│  Selection or command                                                │
│  ===> ENDITDAGT_                                                      │
│ ─────────────────────────────────────────────────────────────────── │
│  F3=Exit   F4=Prompt    F9=Retrieve   F12=Cancel   F13=Information Assistant│
│  F23=Set initial menu                                                │
│ ─────────────────────────────────────────────────────────────────── │
│ MA▌   a                MW              A                    20/016    │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 32. The ENDITDAGT command

2. After the installation, create a save file to save the Tivoli Management
   Agent software files to a package on the local AS/400 machine. Type the
   CTRSAVF command on the AS/400 command line and press the **F4** key.
   Next, enter the information for save file name and its library and then press
   Enter. Refer to Figure 33 on page 45. For more detailed information about
   save file (backup and recovery), refer to *OS/400 Backup and Recovery
   V4R4*, SC41-5304.

```
FALCON                                                            _ □ ✕
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Create Save File (CRTSAVF)

 Type choices, press Enter.

 Save file  . . . . . . . . . . .   ITDAGT       Name
   Library  . . . . . . . . . . .     ITDAGTSW   Name, *CURLIB
 Text 'description' . . . . . . .   ITD AGENT SOFTWARE

 ___




                              ▶




                                                               Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
 F13=How to use this display      F24=More keys

MA█   a                MW                A                        07/056
```
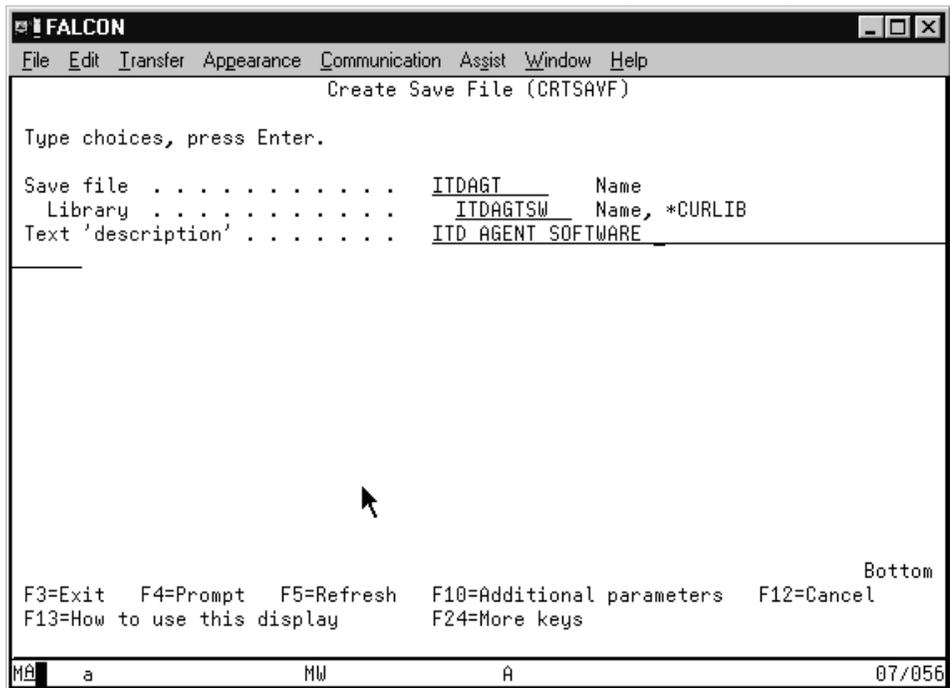
Figure 33. The CRTSAVF command

3. Create the save file on the remote AS/400 machine. Follow the same
   procedure as with local AS/400. See Figure 34 on page 46.

```
RALEIGH                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                      Create Save File (CRTSAVF)

Type choices, press Enter.

Save file  . . . . . . . . . .   ITDAGT        Name
  Library  . . . . . . . . . .    ITDAGTSW     Name, *CURLIB
Text 'description' . . . . . .   ITD AGENT SOFTWARE

                                                             Bottom
F3=Exit    F4=Prompt    F5=Refresh    F10=Additional parameters   F12=Cancel
F13=How to use this display       F24=More keys

MA    c                                      A                 07/055
```
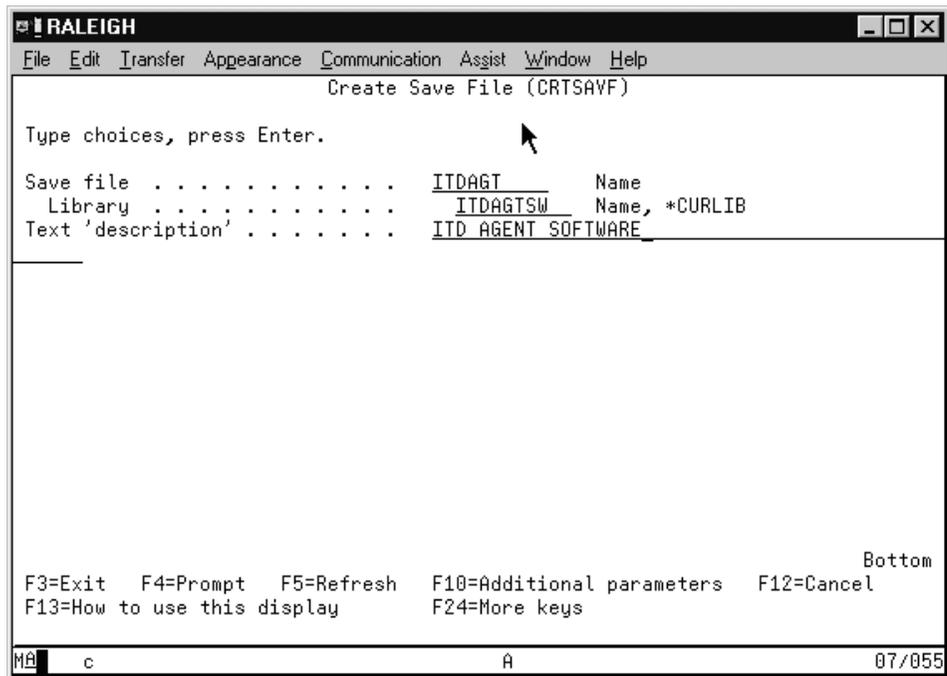
Figure 34. The CRTSAVF command on remote AS/400

Note

We recommend that you use the same name for the save file and library to simplify the following processes.

---

4. Save the Tivoli Management Agent software on the local AS/400 machine. Type the SAVLICPGM command on theAS/400 command line and press the **F4** key. Input the information listed below (also refer to Figure 35 on page 47). Then, press **Enter**.

   Product   1ITDAGT. The Tivoli Management Agent software.

   Device   *SAVF. Save file.

```
FALCON                                                            _ □ ☒
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Save Licensed Program (SAVLICPGM)

Type choices, press Enter.

Product  . . . . . . . . . . . .    1ITDAGT        Character value
Device . . . . . . . . . . . . .    *SAVF          Name, *SAVF
                  + for more values   _____
Optional part to be saved  . . .    *BASE          *BASE, 1, 2, 3, 4, 5, 6, 7...
Release  . . . . . . . . . . . .    *ONLY          Character value, *ONLY
Language for licensed program  .    *PRIMARY       Character value, *PRIMARY...
Object type  . . . . . . . . . .    *ALL           *ALL, *PGM, *LNG




                                                                 Bottom
F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel   F13=How to use this display
F24=More keys

MA▮    a              MW              A                        07/037
```

Figure 35. The SAVLICPGM command (1 of 2)

5. The Parameter screen is extended. Type the extended information into the
    save file and library parameter fields. Use the save file and library that you
    created in the former process, then press **Enter**. See Figure 36 on page
    48. Now, the saving software process starts.

```
┌────────────────────────────────────────────────────────────────────────┐
│ ▣▌FALCON                                                      _ □ ✕      │
├────────────────────────────────────────────────────────────────────────┤
│ File  Edit  Transfer  Appearance  Communication  Assist  Window  Help    │
│                   Save Licensed Program (SAVLICPGM)                       │
│                                                                          │
│ Type choices, press Enter.                                               │
│                                                                          │
│ Product  . . . . . . . . . . . . > 1ITDAGT        Character value        │
│ Device . . . . . . . . . . . . . > *SAVF          Name, *SAVF            │
│              + for more values        _____                           │
│ Optional part to be saved  . . .   *BASE          *BASE, 1, 2, 3, 4, 5, 6, 7... │
│ Release  . . . . . . . . . . . .   *ONLY          Character value, *ONLY  │
│ Language for licensed program  .   *PRIMARY       Character value, *PRIMARY... │
│ Object type  . . . . . . . . . .   *ALL           *ALL, *PGM, *LNG        │
│ Save file  . . . . . . . . . . .   ITDAGT         Name                    │
│   Library  . . . . . . . . . . .     ITDAGTSW     Name, *LIBL, *CURLIB    │
│ Target release . . . . . . . . .   *CURRENT       *CURRENT, *PRV, V3R2M0... │
│ Clear  . . . . . . . . . . . . .   *NONE          *NONE, *ALL, *AFTER     │
│ Data compression . . . . . . . .   *DEV           *DEV, *NO, *YES         │
│                                                                          │
│                                                                          │
│                                                                          │
│                                                             Bottom        │
│ F3=Exit   F4=Prompt    F5=Refresh   F12=Cancel   F13=How to use this display │
│ F24=More keys                                                            │
├────────────────────────────────────────────────────────────────────────┤
│ MA▌   a               MW              A                        13/046     │
└────────────────────────────────────────────────────────────────────────┘
```

Figure 36. The SAVLICPGM command (2 of 2)

6. After the saving process, transfer the saved file to the remote AS/400
   machine from the local AS/400 machine using FTP. On the local AS/400
   machine, type the `FTP` command on the AS/400 command line and press
   the **F4** key. On the command prompt screen, type the remote AS/400 host
   name or IP address in the Remote system parameter field as shown in
   Figure 37 on page 49. For more detailed information about FTP, refer to
   TCP/IP Configuration and Reference, SC41-5420.

```
RALEIGH                                                          _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                     Start TCP/IP File Transfer (FTP)

Type choices, press Enter.

Remote system  . . . . . . . . . >  FALCON_____



  _____
  Coded character set identifier     *DFT_____   1-65533, *DFT








                                                                  Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
  F13=How to use this display        F24=More keys

MA▮   c                                    A                      09/037
```
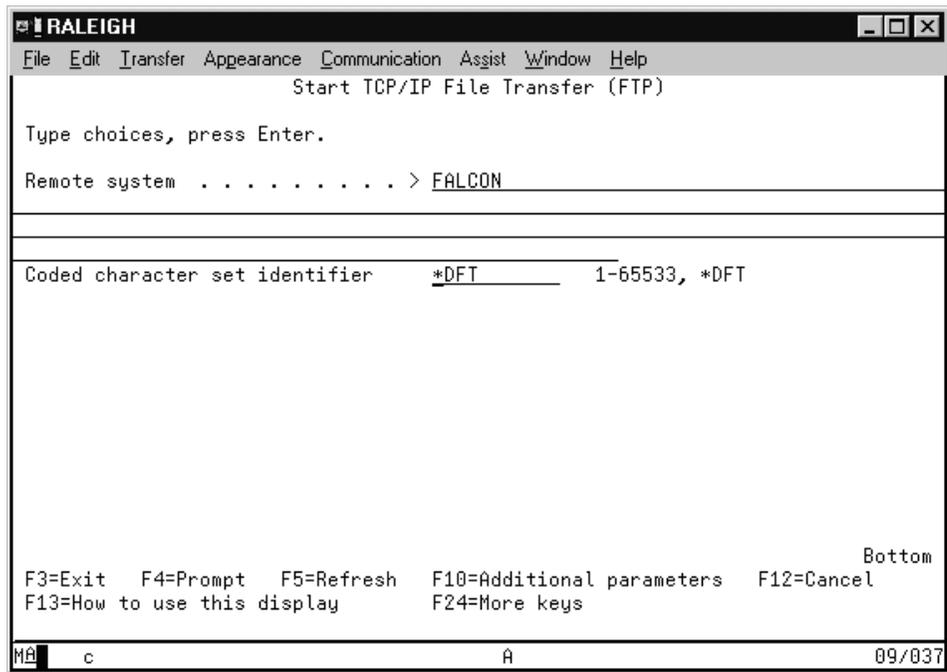
Figure 37. The FTP command

7. If the connection to the remote AS/400 is established successfully, you
   need to type a valid user ID and password to access the remote system.
   First type the user ID and press **Enter**, then type the password. See Figure
   38 on page 50.

```
RALEIGH                                                    _ □ ✕
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                      File Transfer Protocol

Previous FTP subcommands and messages:
  Connecting to host FALCON at address 9.3.187.203 using port 21.
  220-QTCP at FALCON.
  220 Connection will close if idle more than 5 minutes.
> QSECOFR
  331 Enter password.




Enter password:
===>           _



F3=Exit      F6=Print      F9=Retrieve
F17=Top      F18=Bottom    F21=CL command line

MA█   c                                    A            18/014
```

Figure 38. FTP password request screen

8. Type the FTP sub-commands as follows:

> BIN [Change binary mode]
> CD library name [library that holds the save file on remote AS/400]
> LCD library name [library that holds the save file on local AS/400]
> GET save file name (replace [in this example, both files are same name]

Then, the transfer process is started. After the completion of transfer, type the QUIT subcommand as follows to exit the FTP program:

> QUIT

```
RALEIGH                                                    _ □ ✕
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        File Transfer Protocol

Previous FTP subcommands and messages:
> BIN
  200 Representation type is binary IMAGE.
> CD ITDAGTSW
  250 "ITDAGTSW" is current library.
> LCD ITDAGTSW
  Local working directory is ITDAGTSW
> GET ITDAGT (REPLACE
  250  Now using naming format "0 .
  257 "ITDAGTSW" is current library.
  227 Entering Passive Mode (9,3,187,203,20,6).
  150 Retrieving member ITDAGT in file ITDAGT in library ITDAGTSW.
  250 File transfer completed successfully.
  26484480 bytes transferred in 154.823 seconds. Transfer rate 171.063 KB/sec.
Enter an FTP subcommand.
===> QUIT_


_____
F3=Exit     F6=Print      F9=Retrieve
F17=Top     F18=Bottom    F21=CL command line

MA█   c                                  A                    18/011
```

Figure 39. FTP completion

9. Start the installation process on the remote AS/400 machine. Type the
   RSTLICPGM command on the remote AS/400 command line, then press the
   F4 key. On the command prompt screen, input the information listed
   below:

Product	1ITDAGT
Device	*SAVF

   Then press **Enter**. See Figure 40 on page 52.

```
RALEIGH                                                          _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Restore Licensed Program (RSTLICPGM)

Type choices, press Enter.

Product  . . . . . . . . . . . . .   1ITDAGT       Character value
Device . . . . . . . . . . . . . .   *SAVF____     Name, *SAVF
             + for more values       _____
Optional part to be restored . .     *BASE         *BASE, 1, 2, 3, 4, 5, 6, 7...
Type of object to be restored  .     *ALL          *ALL, *PGM, *LNG
Language for licensed program  .     *PRIMARY      Character value, *PRIMARY...
Output . . . . . . . . . . . . .     *NONE         *NONE, *PRINT
Release  . . . . . . . . . . . .     *FIRST        Character value, *FIRST
Replace release  . . . . . . . .     *ONLY         Character value, *ONLY, *NO




                                                                   Bottom
F3=Exit    F4=Prompt    F5=Refresh    F10=Additional parameters    F12=Cancel
F13=How to use this display        F24=More keys

MA█   c                                                          06/042
```
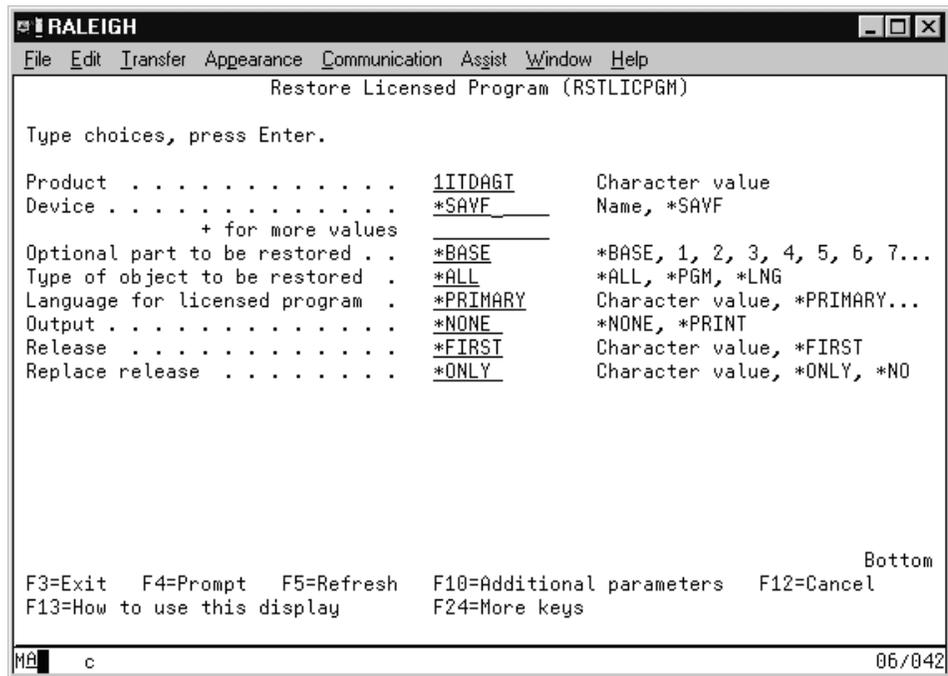
Figure 40. The RSTLICPGM command (1 of 2)

10.The parameter screen is extended. Type the extended information into the
   save file and library parameter fields. Type the information as listed below.

> **Save file**   ITDAGT The save file name.

> **Library**   ITDAGTSW The library in which the save file exists.

Then, press **Enter**. See Figure 41 on page 53. The software installation
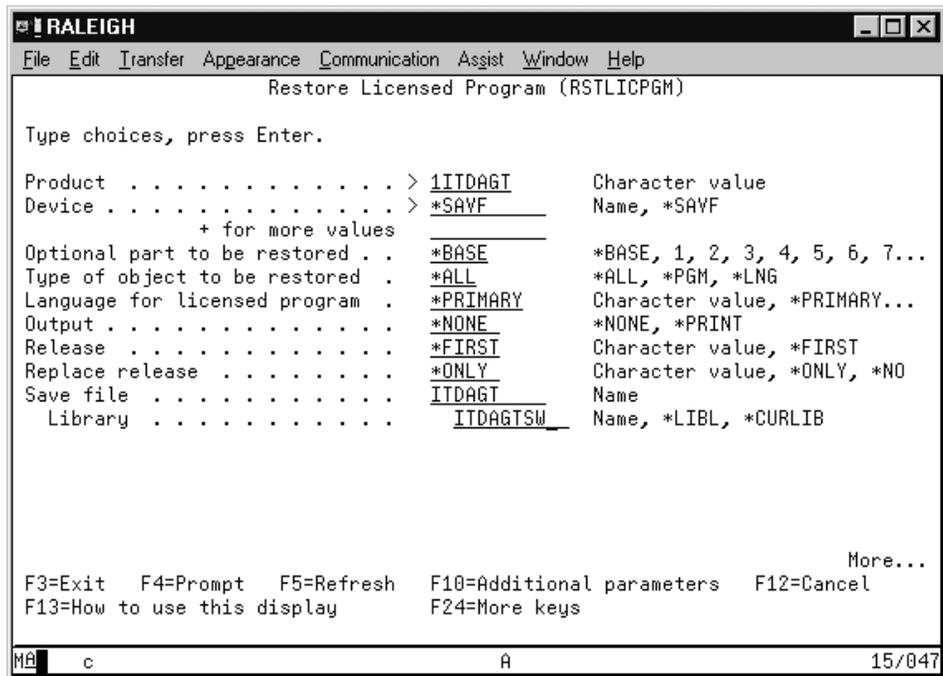process starts.

```
RALEIGH                                                          _ □ X
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                    Restore Licensed Program (RSTLICPGM)

Type choices, press Enter.

Product  . . . . . . . . . . . . > 1ITDAGT        Character value
Device . . . . . . . . . . . . . > *SAVF          Name, *SAVF
               + for more values
Optional part to be restored . .   *BASE          *BASE, 1, 2, 3, 4, 5, 6, 7...
Type of object to be restored  .   *ALL           *ALL, *PGM, *LNG
Language for licensed program  .   *PRIMARY       Character value, *PRIMARY...
Output . . . . . . . . . . . . .   *NONE          *NONE, *PRINT
Release  . . . . . . . . . . . .   *FIRST         Character value, *FIRST
Replace release  . . . . . . . .   *ONLY          Character value, *ONLY, *NO
Save file  . . . . . . . . . . .   ITDAGT         Name
  Library  . . . . . . . . . . .     ITDAGTSW     Name, *LIBL, *CURLIB




                                                                   More...
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display       F24=More keys

MA    c                                        A                     15/047
```

Figure 41. The RSTLICPGM command (2 of 2)

11.After the installation, you can check whether the software has been
   installed successfully using the DSPSFWRSC command. Refer to Figure 21 on
   page 32.

4.3.3 Configuring the Tivoli Management Agent

On the IT Director Management Agent, you need to configure the IT Director
Agent attributes. On the AS/400 command line, type the CHGITDAGTA
command, press the **F4** key, and then enter the information. See Figure 42 on
page 54. Refer to Chapter 3 of the *Tivoli IT Director User's Guide* for more
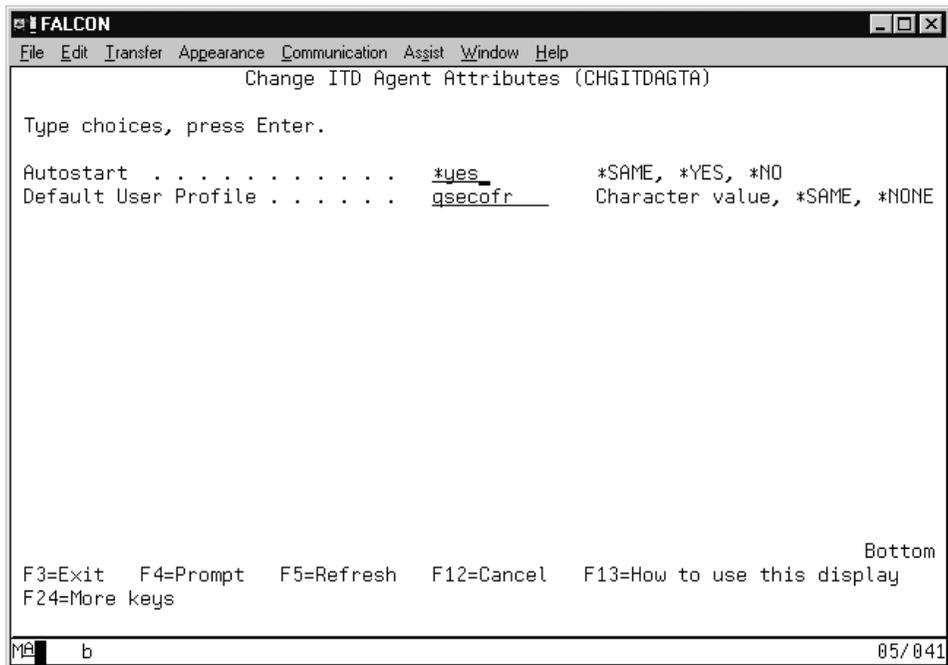information about the meaning of each parameter.

```
FALCON                                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                  Change ITD Agent Attributes (CHGITDAGTA)

Type choices, press Enter.

Autostart . . . . . . . . . . .    *yes        *SAME, *YES, *NO
Default User Profile . . . . . .   qsecofr     Character value, *SAME, *NONE




                                                                        Bottom
F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
F24=More keys

MA  b                                                                   05/041
```

Figure 42. The CHGITDAGTA command

> **Note**
>
> The Tivoli IT Director Management Agent also uses the AS/400 system
> value QAUTCOFFSET. You need to check the value. For more detailed
> information, refer to 4.1.5, "Tips and considerations" on page 36.

4.3.3.1 Security considerations for Tivoli Management Agent

For security considerations, please refer to 3.2.4, "Security parameters" on
page 16.

4.3.4 Starting the IT Director Management Agent

After the installation and configuration, you can start the Tivoli IT Director
Management Agent. To start the Agent process, type the STRITDAGT command
as shown in Figure 43 on page 55. Normally, the IT Director Management
Agent starting process should not take long compared to the IT Director
Management Server starting process.

```
 ▣▮! FALCON                                                          _ □ ×
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
 MAIN                             AS/400 Main Menu
                                                        System:   FALCON
 Select one of the following:

        1. User tasks
        2. Office tasks
        3. General system tasks
        4. Files, libraries, and folders
        5. Programming
        6. Communications
        7. Define or change the system
        8. Problem handling
        9. Display a menu
       10. Information Assistant options
       11. Client Access/400 tasks

       90. Sign off

 Selection or command
 ===> stritdagt_
 _____
 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
 F23=Set initial menu

 MA▮    b                                                      20/016
```

Figure 43. The STRITDAGT command

4.3.5 Stopping the IT Director Management Agent

To stop the Tivoli IT Director Management Agent, type the `ENDITDAGT`
command on the AS/400 command line, then press **Enter**. The IT Director
Agent stopping process starts immediately.

4.3.6 Requesting access to the AS/400 IT Director Agent

After the installation and discovery of the IT Director Agent on the AS/400
systems, you will notice that the AS/400 system is displayed with a locked
icon. This is because AS/400 systems are secured by default and you will
have to provide an administrator account name and password to gain access.
To accomplish this, right-click the system icon with the right mouse-button.
Then select **Request Access...**. See Figure 44 on page 56.
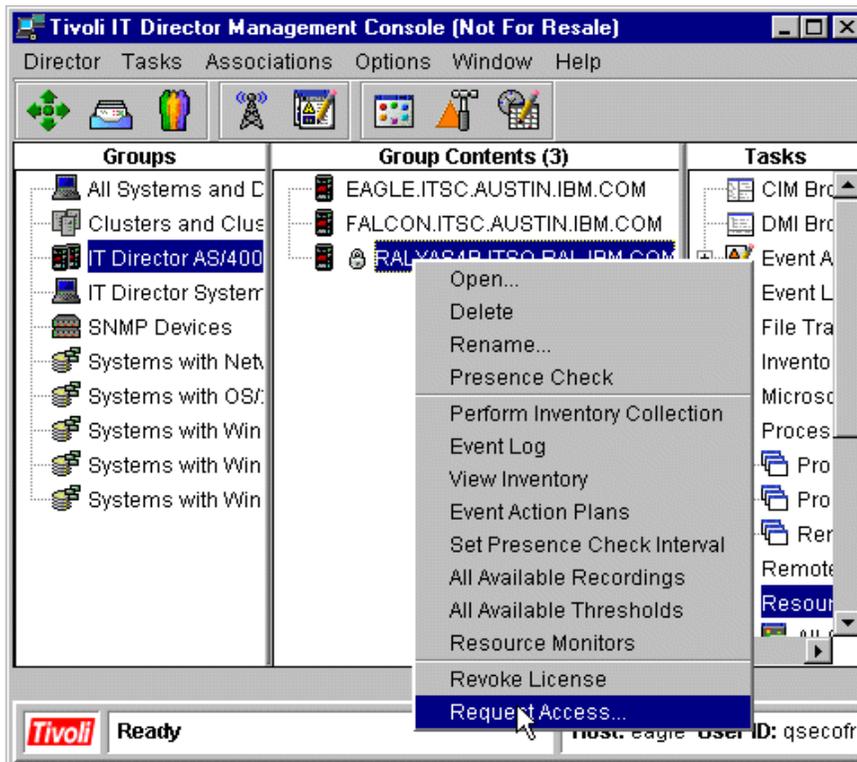
Figure 44. Requesting access

The screen shown in Figure 45 appears and prompting for a correct user ID and password.

Figure 45. Inputting administrator account name and password

The user must have *ALLOBJ authority or have *CHANGE authority to obtain the TIVITDAGT authorization list. Next, fill in the password and click **OK**. You will be notified if the user ID and password are accepted. See Figure 46.

Figure 46. Access request accepted

The AS/400 system is now ready to be managed by the Tivoli IT Director for AS/400.

4.4 Uninstalling IT Director components

The uninstallation process of the Tivoli IT Director Management Server and Tivoli Management Agent is performed by the DLTLICPGM command. With this process, all the items that were created in the installation process are deleted except the user profiles (TIVITDSVR, TIVITDAGT).

4.4.1 Uninstalling the IT Director Management Server

This section provides information about uninstalling the Tivoli IT Director Management Server. To uninstall, perform the following steps:

1. If the Tivoli IT Director Management Server is still running, you need to stop it. Type the ENDITDSVR command on the AS/400 command line, then press **Enter**.

2. Type the DLTLICPGM 1ITDSVR command on the AS/400 command line, then press **Enter**. The uninstall process starts. See Figure 47 on page 58.

```
 EAGLE                                                      _ □ X

 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
 MAIN                              AS/400 Main Menu
                                                        System:    EAGLE
 Select one of the following:

         1. User tasks
         2. Office tasks
         3. General system tasks
         4. Files, libraries, and folders
         5. Programming
         6. Communications
         7. Define or change the system
         8. Problem handling
         9. Display a menu
        10. Information Assistant options
        11. Client Access/400 tasks

        90. Sign off

 Selection or command
 ===> DLTLICPGM 1ITDSVR_____
 _____
 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
 F23=Set initial menu
 (C) COPYRIGHT IBM CORP. 1980, 1999.
 MA▮   a                  MW                                      20/024
```
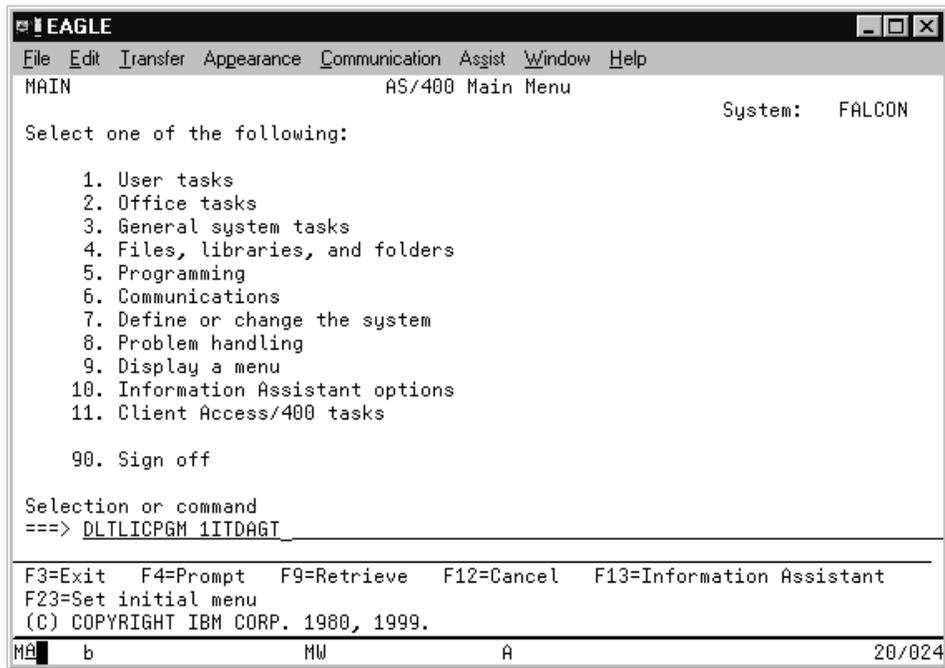
Figure 47. The DLTLICPGM 1ITDSVR command

After the uninstallation has completed, you will receive a message. See
Figure 48 on page 59.

```
EAGLE                                                                    _ □ X
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
MAIN                            AS/400 Main Menu
                                                          System:   EAGLE
Select one of the following:

       1. User tasks
       2. Office tasks
       3. General system tasks
       4. Files, libraries, and folders
       5. Programming
       6. Communications
       7. Define or change the system
       8. Problem handling
       9. Display a menu
      10. Information Assistant options
      11. Client Access/400 tasks

      90. Sign off

Selection or command
===>  _____

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
*LNG objects for NLV 2924 for product 1ITDSVR option *BASE release V4R4M0... +
MA    a                                                              19/072
```

Figure 48. Uninstall 1ITDSVR completion

3. You can check the deletion of software using the DSPSFWRSC command.

Note

In this process, the user profile TIVITDSVR is not deleted. You need to delete it manually if you do not want to use it in the future.

4.4.2 Uninstalling the IT Director Management Agent

This section provides information about uninstalling the Tivoli Management Agent. To uninstall, perform the following steps:

1. If the Tivoli Management Agent is still running, you need to stop it. Type the ENDITDAGT command on the AS/400 command line, then press **Enter**.

2. Type the DLTLICPGM 1ITDAGT command on the AS/400 command line, then press **Enter**. The uninstallation process starts. See Figure 49 on page 60.

```
EAGLE                                                                    _ □ X

File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
MAIN                                   AS/400 Main Menu
                                                              System:    FALCON
Select one of the following:

      1. User tasks
      2. Office tasks
      3. General system tasks
      4. Files, libraries, and folders
      5. Programming
      6. Communications
      7. Define or change the system
      8. Problem handling
      9. Display a menu
     10. Information Assistant options
     11. Client Access/400 tasks

     90. Sign off

Selection or command
===> DLTLICPGM 1ITDAGT_____
_____
F3=Exit    F4=Prompt    F9=Retrieve    F12=Cancel    F13=Information Assistant
F23=Set initial menu
(C) COPYRIGHT IBM CORP. 1980, 1999.
MA▮   b                    MW                      A                    20/024
```

Figure 49. The DLTLICPGM 1ITDAGT command

3. If you do not need the Tivoli endpoint, you can also uninstall it. Type the
    `DLTLICPGM 1TMELCF` command as shown in Figure 50 on page 61.

```
 ▣ FALCON                                                          _ □ ×
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
 MAIN                              AS/400 Main Menu
                                                      System:    FALCON
 Select one of the following:

         1. User tasks
         2. Office tasks
         3. General system tasks
         4. Files, libraries, and folders
         5. Programming
         6. Communications
         7. Define or change the system
         8. Problem handling
         9. Display a menu
        10. Information Assistant options
        11. Client Access/400 tasks

        90. Sign off

 Selection or command
 ===> DLTLICPGM 1TMELCF_


 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
 F23=Set initial menu
 (C) COPYRIGHT IBM CORP. 1980, 1999.
 MA▮   b                  MW                  A                    20/024
```

Figure 50. Delete Tivoli endpoint software

4. You can check that the software has been deleted using the `DSPSFWRSC` command.

Note

In this process, the user profile TIVITDAGT is not deleted. You need to delete it manually if you do not want to use it in the future.

4.4.3 The DLTITDDTA command

The `DLTITDDTA` command is common to the Management Server and Agent. This command deletes the configuration data and database from the AS/400. The deleted resources are:

• Some files in TIVITDDB library (Server only)

• Some files in /TivoliItdData directory

To use this command, type `DLTITDDTA` on the AS/400 command line, then press **Enter**.

You can only use this command before you uninstall the Management Server or Agent software.

Chapter 5. Using Tivoli IT Director for AS/400

Tivoli IT Director Management Server for AS/400 provides a variety of powerful functions for managing your AS/400s and other machines efficiently. The following is a list of these functions:

- Inventory management
- Resource monitoring
- Event management
- Software distribution
- File transfer
- SNMP management
- Process management
- Task scheduler
- Internet services

Each function is highly integrated and is easy to use form the Tivoli IT Director Management Console GUI. This enables customers to implement management solutions quickly and efficiently. Tivoli IT Director provides powerful solutions for small-to-medium environments, either by using one function, or a combination of different functions.

This chapter introduces detailed information about each management function provided by Tivoli IT Director Management Server for AS/400.

5.1 Inventory management

When Tivoli IT Director is started, the Inventory task begins to collect inventory data from the discovered nodes. IT Director Inventory management helps you handle and manage the inventory data of hardware and software installed on your network. Inventory management can also help you organize your hardware resources to prepare a migration plan or a software upgrade.

IT Director Inventory Management automatically collects the inventory data and enables you to display and export it easily. Even though AS/400 information is visible in the general inventory data fields, Tivoli IT Director Inventory also contains an AS/400 folder for detailed AS/400 inventory. For instance, there is one AS/400-specific table for hardware information. This information can be retrieved using the DSPHDWRSC command.

The cumulative PTF level is in the software table (but it is not an AS/400-specific table). This information is similar to what is seen on the AS/400 with the DSPSFWRSC and DSPHDWRSC commands.

- Information related to hardware
    - CPU type
    - Disk type, size
    - Communications adapters
- Information related to software
    - Product name
    - Version
    - Vendor name

All this allows you to move away from the earlier methods of manually updated inventories, which usually either contained too little data or were out of date. Figure 51 on page 65 shows the inventory data process flow with Tivoli IT Director Inventory management.
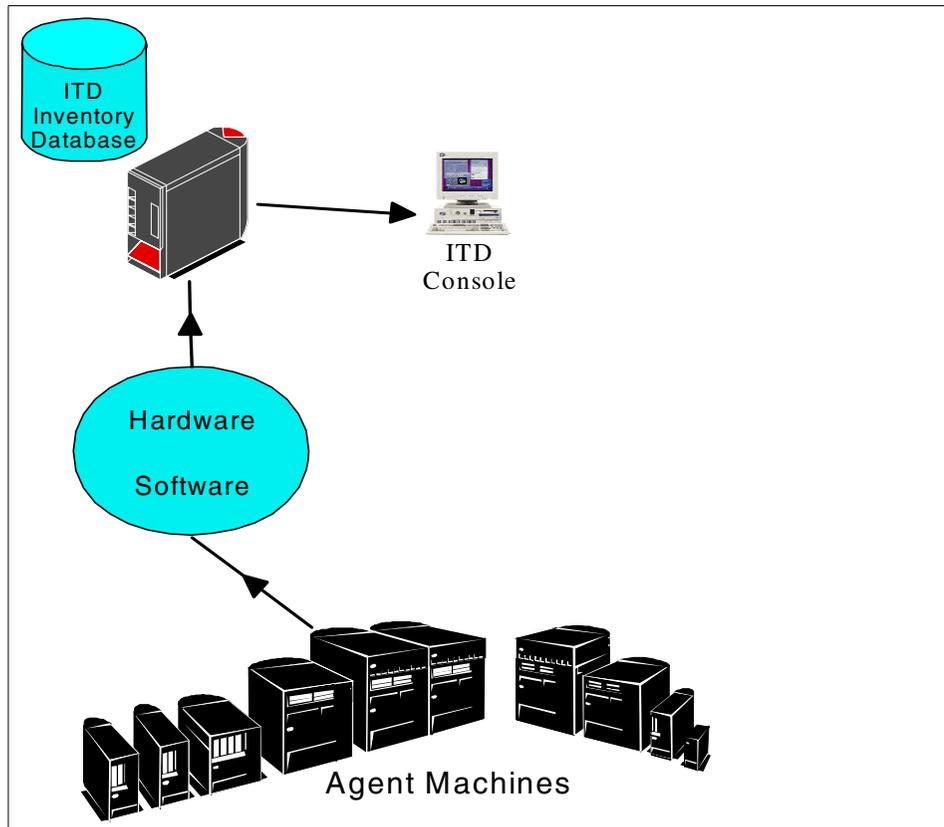
Figure 51. Inventory functions overview

In the IT Director management environment, the inventory data is collected when a managed system is initially discovered and then during regular intervals. All of this data then becomes valid data for configuring the criteria for creating a new group. You also can set your own frequency of inventory collection, for example, daily or weekly.

5.1.1 Performing an inventory collection

Inventory data is collected on all discovered managed systems in your network at system discovery and during regular intervals. Figure 52 on page 66 shows the IT Director Management Console with the inventory data.
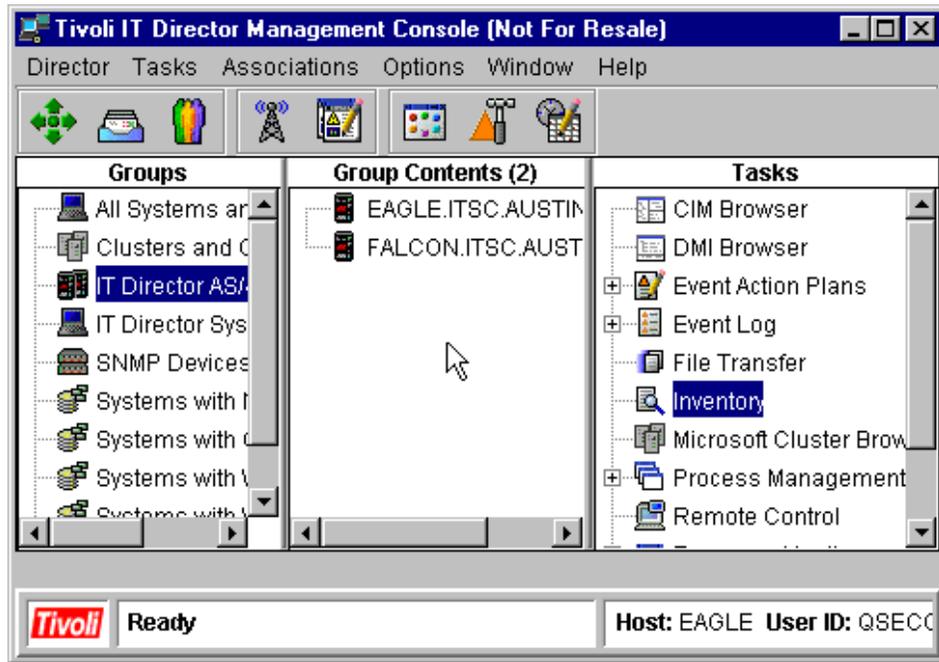
Figure 52. Starting inventory management

Start the Inventory task by dragging and dropping the Inventory task icon
onto the target machine or a group, or by right-clicking a group and selecting
the **View Inventory** menu. See Figure 53 on page 67.
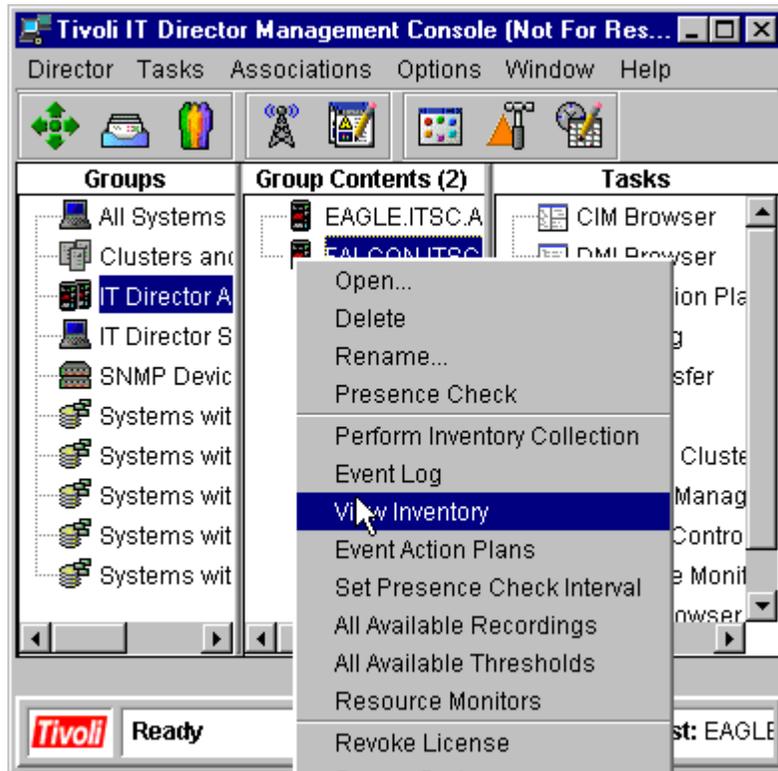
Figure 53. View Inventory selection

5.1.2 The Inventory Query Browser

IT Director Inventory Management provides an Inventory Query Browser. This window is divided into the following two panels:

- Available Queries
- Query Results

The following describes each panel:

Available Queries   This panel contains a custom folder that you can use to store customized queries that you or others create and a standard folder of default queries that are defined for you during the installation.

Query Results   This panel displays the results of the queries you select. The query results include only data that is valid for the managed systems targeted. For example,

Windows NT systems do not contain AS/400 components; therefore, they will display nothing in the AS/400 hardware query. Figure 54 shows the Inventory Query Results panel.
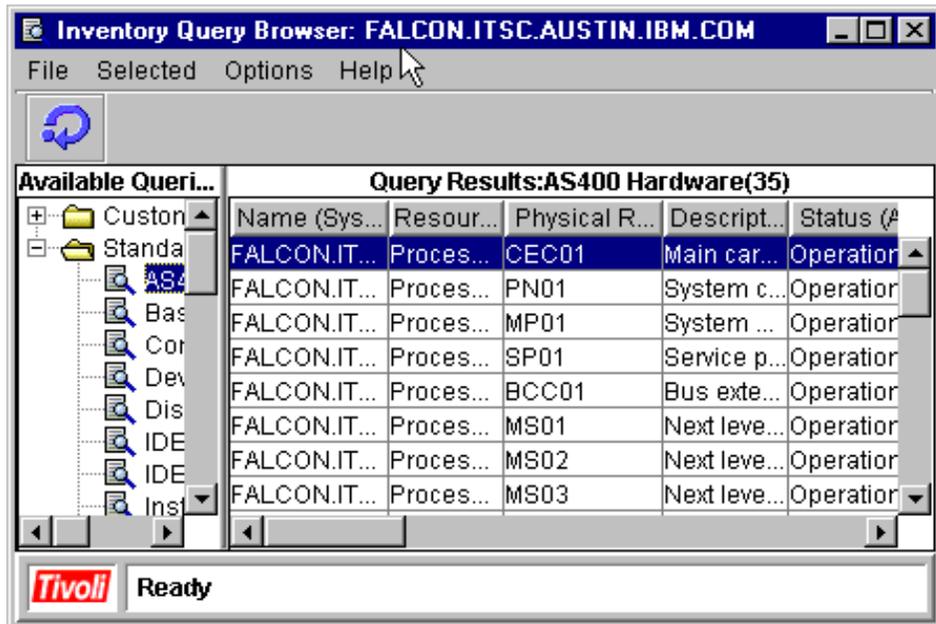
Figure 54. Query Results panel

When an inventory query is completed, the results are displayed in the Query Results panel. The results are shown in tabular columns in the order in which they were defined when the query was originally built.

5.1.3 Building a customized query

There are many useful default queries defined in the standard folder in the Inventory Query Browser window. If they do not quite match your needs, you can build your own custom inventory queries using the Inventory Query Builder window. Drag and drop the desired data items from the Available Criteria panel, or use the **Add** and **Remove** buttons to create your query in the Selected Criteria panel. You can define the query criteria to be presented in whatever order you like. You can select entire folders (containing many different criteria) or individual criteria items from each folder. You can have multiple folders open at once to add to the query being built.

To invoke the Inventory Query Builder, select **Tasks** from the menu bar and select the **Build Custom Query** menu. See Figure 55.
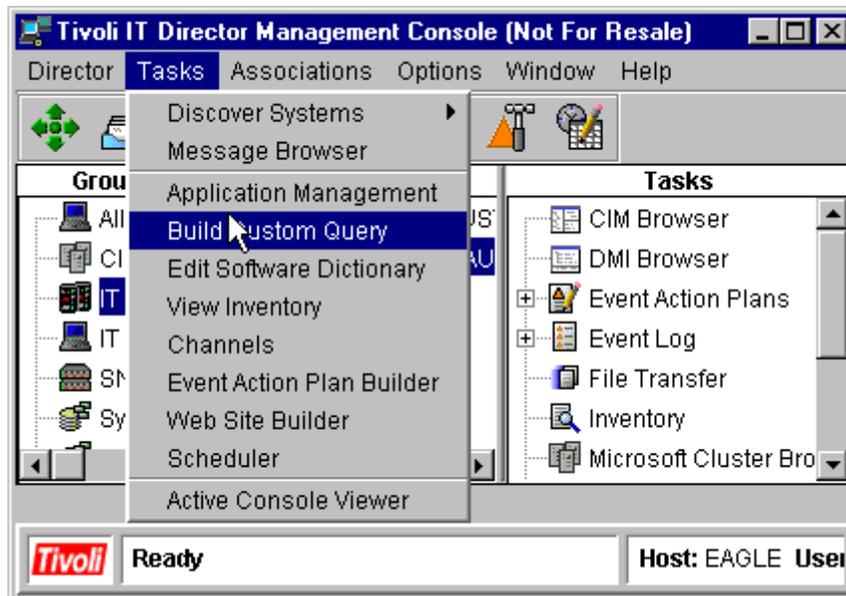
Figure 55. Build Custom Query selection

Then, click **AS400 Hardware** to see the extended Available Criteria as shown in Figure 56 on page 70.
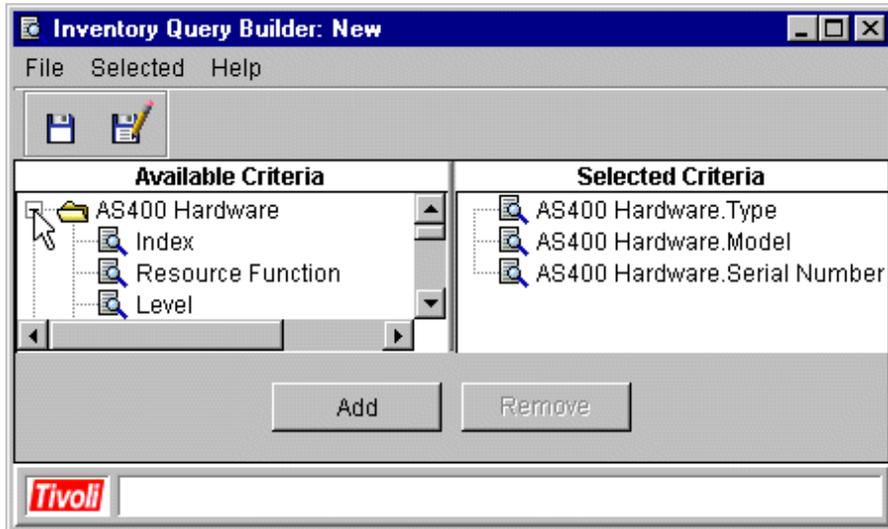
Figure 56. Select hardware criteria details

Select the criteria you want to add to the Selected Criteria panel, then click the **Add** button. Figure 57 and Figure 58 on page 71 demonstrate how criteria from different folders (such as Hardware and Software) can be added to create a single query.
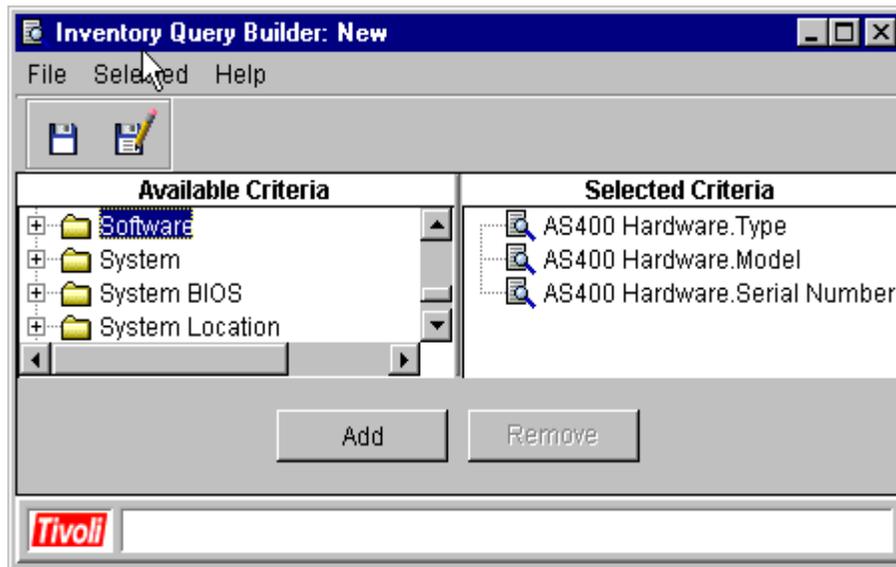
Figure 57. Select software criteria

First, you just select the folder, then select the criteria and click the **Add** button.
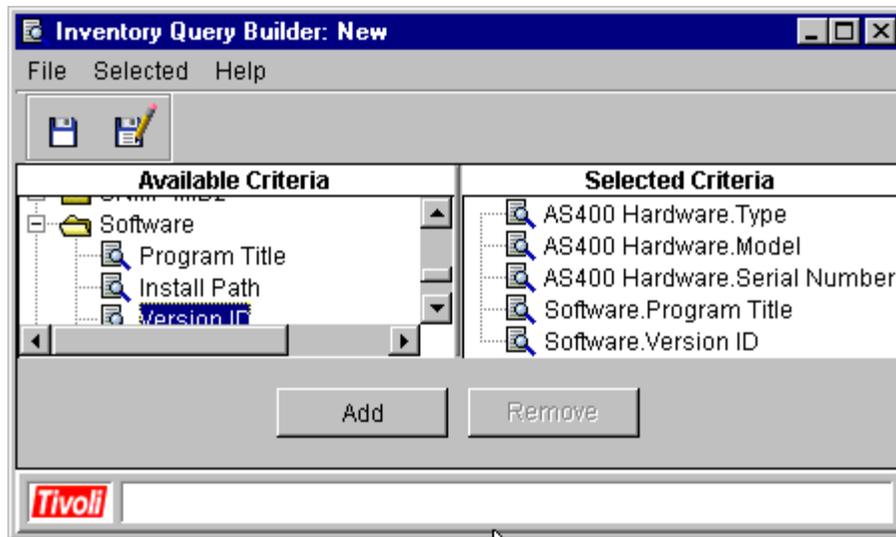
Figure 58. Software criteria details

As a result, you will be able to browse the customized query on the IT Director Management Console as shown in Figure 59 on page 72.
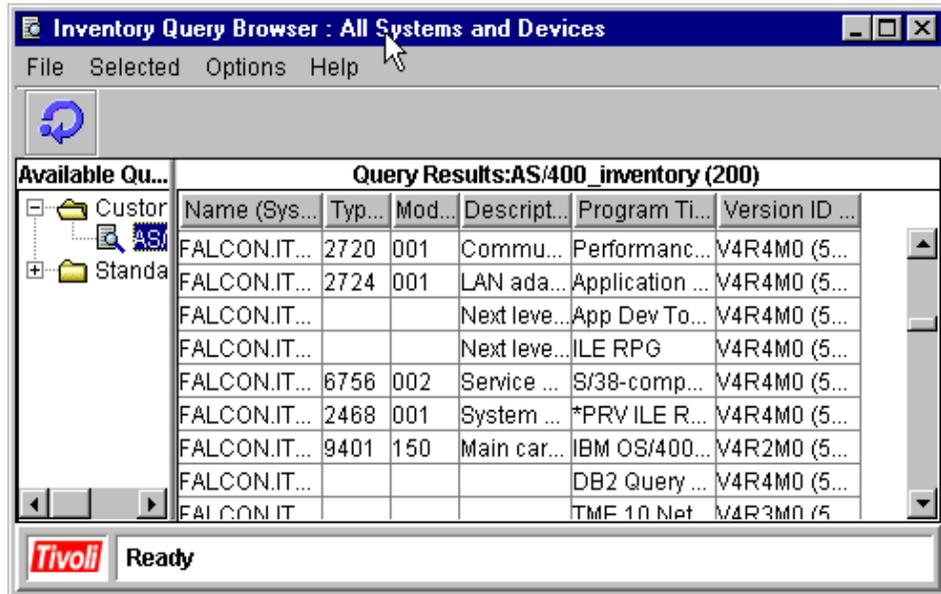
Figure 59. Customized query result

Please refer to the Appendix of the *Tivoli IT Director User's Guide* for more information about the IT Director Inventory databases and tables.

5.1.4 Updating the list of available queries

Click the following icon, the refresh queries icon, in the tool bar at the top of the Inventory Query Browser window to refresh the inventory database.

This icon updates the view to show custom queries created by all users. This function is helpful if several people are creating queries at the same time.

5.1.5 Modifying inventory collection preferences

You can configure how often inventory data is refreshed as well the response time for attempted inventory refreshes by selecting **Options -> Server Preferences**, and selecting the **Inventory Collection Preferences** tab. See Figure 60 and Figure 61 on page 73.
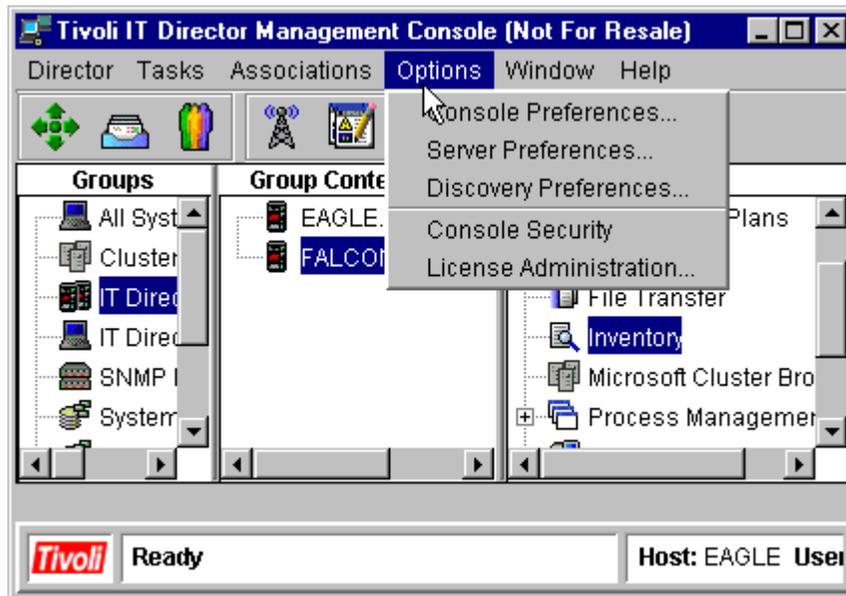
Figure 60. Options panel

For efficient and helpful Inventory Management, Inventory Collection must be done at least once a month, especially if you plan to upgrade a part or the entire network.
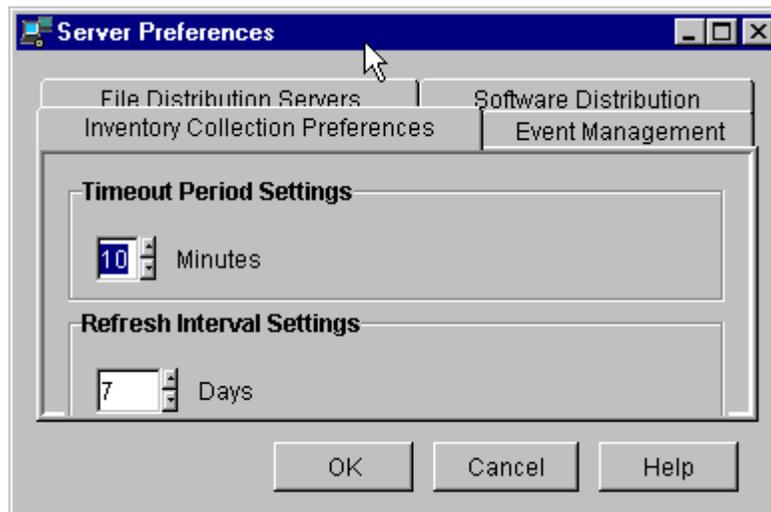
Figure 61. Server Preferences panel

In the Timeout Period Settings field, enter the number of minutes to wait for an inventory refresh to be completed. If no response is received during this period, the refresh is abandoned. The default value is 10 minutes.

In the Refresh Interval Settings field, enter the interval of time desired between automatic refreshes of the inventory database. The default is seven days.

Note

In this case, Inventory Collection can be scheduled to happen during low workload periods.

5.1.6 Using inventory management: Exporting inventory data

Even though the IT Director Inventory task is capable of displaying inventory data in a readable form, sometimes a need arises to send the data to someone who does not have access to an IT Director Management Console. In those cases, the most prudent course of action is to export the data from the Inventory task.

To do this, you must go to the Inventory task and select the query where you wish to have the data exported from. Then, you export the query results by selecting **File -> Export**.
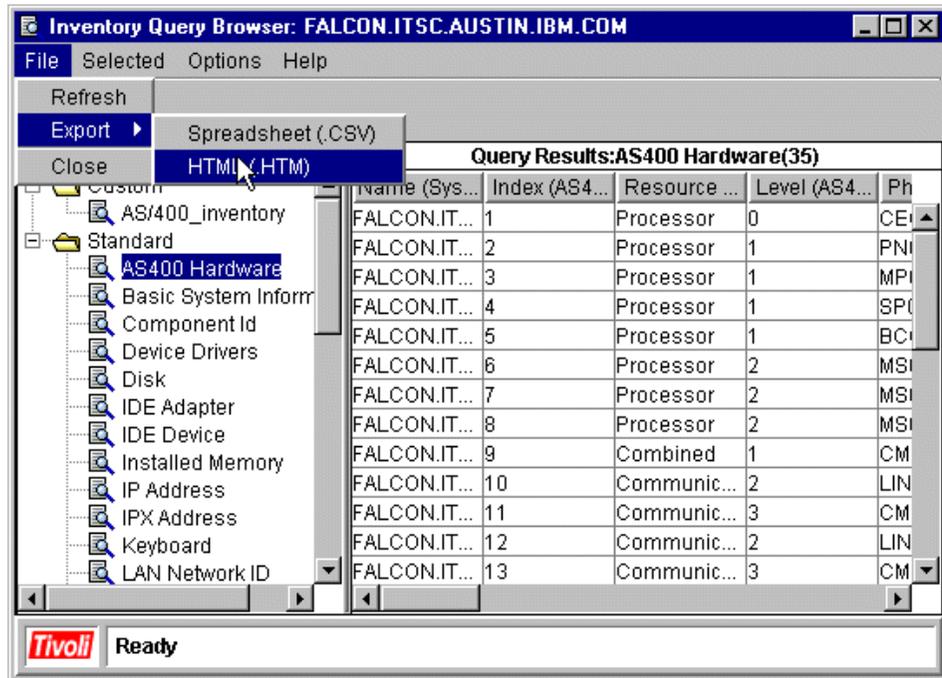
Figure 62. Exporting the query results

The data can be exported in the following two formats:

- Spreadsheet (.CSV) format
- HTML (.HTM) format

Since HTML is a widely-accepted language and browser software capable of reading the files is present on most computers, it is wiser to export in this format by default. But if the data requires modification after export and suitable spreadsheet software (such as Lotus 1-2-3 or Microsoft Excel) is present, then a Spreadsheet format should be chosen. After clicking **HTML** (or **Spreadsheet** if necessary) the screen shown in Figure 63 on page 76 will be displayed.
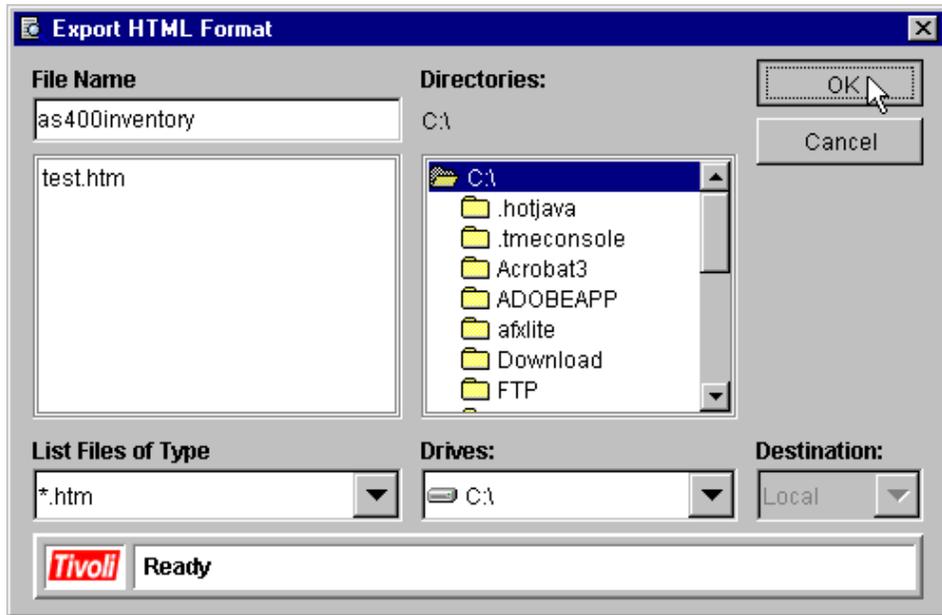
Figure 63. File name query screen

Enter a descriptive name in the File Name field (a .htm suffix will be added automatically), then choose a directory to save the file and click **OK**.
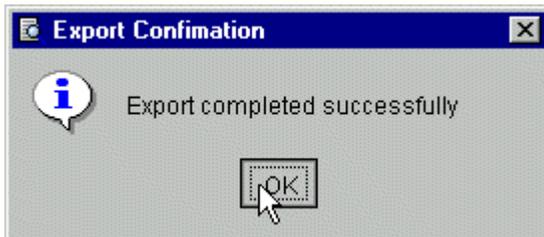
Figure 64. Export complete

Click **OK** in the Export Confirmation screen. The file has now been created with the file name and directory you chose.

5.2 Resource monitoring

The Tivoli IT Director resource monitoring task enables you to view statistics on critical system resources, for example, CPU utilization, disk space, job queue status, and so on.

Using resource monitors, especially when using them in conjunction with event action plans, can help you prevent problems in your environment that are caused by lack of resources. For example, it is far more preferable to be warned that the database server is running out of disk space in advance than actually finding out the hard way.

Checking all kinds of vital resources can always be accomplished by hand, but checking 10 different things on 50 different servers can be time consuming. With resource monitors, you can have the Tivoli IT Director Management Server perform these checks for you.

As a result, you can perform the following actions:

- Timely warnings of critical resources running out.
- Ability to monitor the status of your resources from the IT Director Management Console.
- Ability to view resource status from a Web site.
- If combined with event action plans, it provides an ability to automate responses to low-resource situations, such as cleaning temporary files and compacting databases.
- A way to monitor your resource usage history.
- A way to do it all on up to 1700 machines as easily as on one.

In Figure 65 on page 78, there is an overview showing how resource monitor data gathered from Agent machines get translated into events and other data by the IT Director Management Server and then gets sent to the IT Director Management Console.
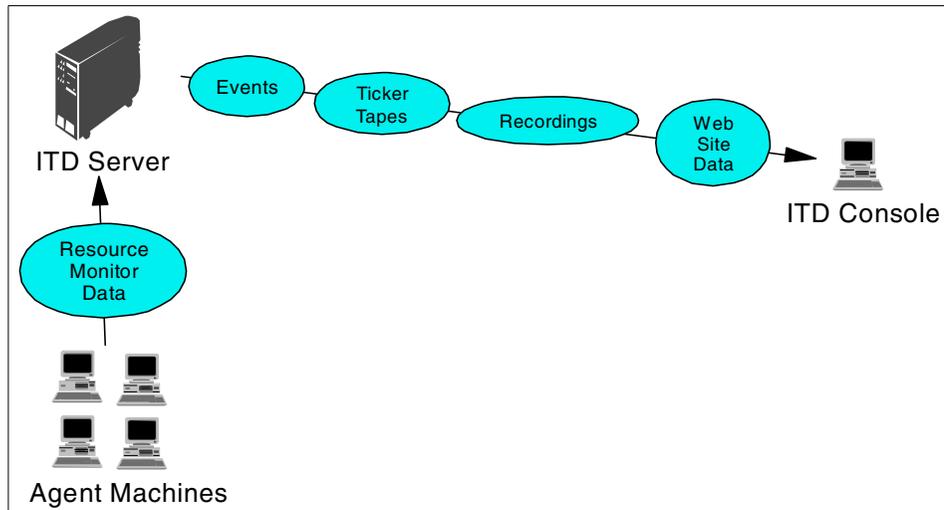
Figure 65. Overview of resource monitoring

The following sections will help you understand and implement resource monitors on your AS/400 platform.

5.2.1 Understanding monitors

IT Director monitors use monitoring agents on the managed systems to enable the gathering of data at the IT Director Management Server.

These monitoring agents gather and forward sampled data to the IT Director Management Server where it is stored for viewing. Gathered data is time-stamped and refreshed at regular intervals.
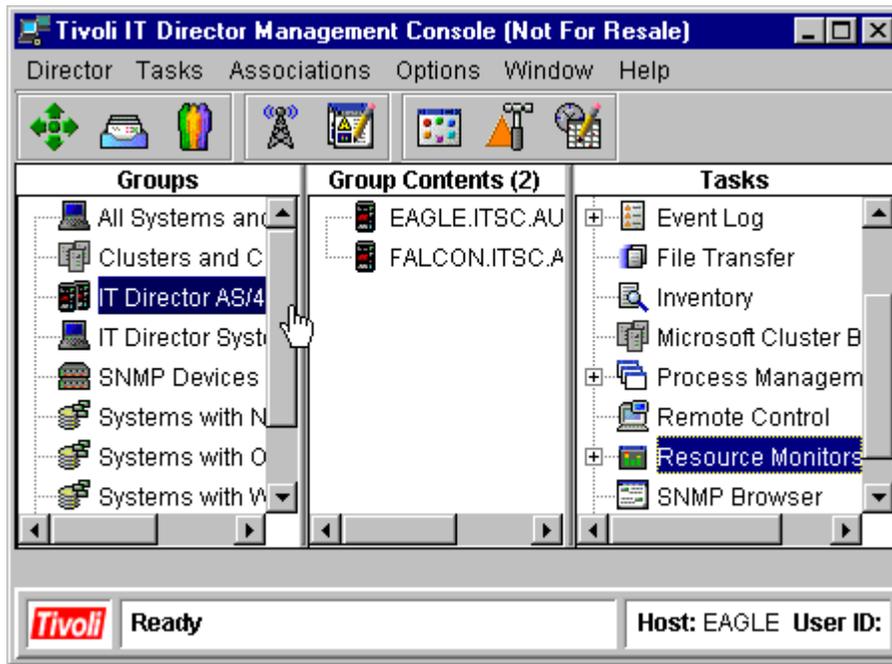
Figure 66. Monitoring resources

You can start resource monitors by dragging the task to a managed system or group, or by right-clicking a group or a system and choosing **Resource Monitors**.

Monitoring categories are called *attributes.* For example, the system statistics monitor function is an expandable attribute with sub-categories.
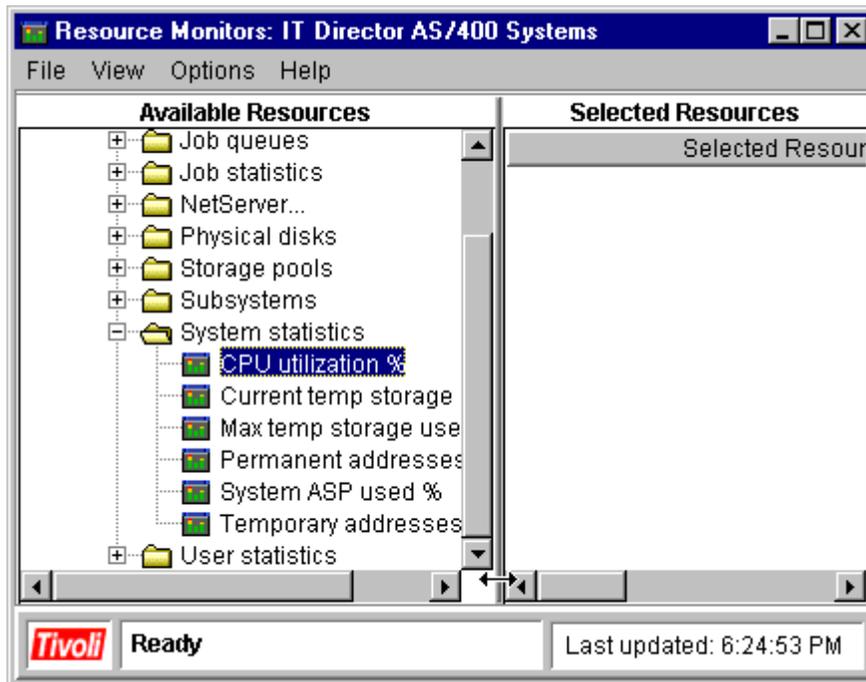
Figure 67. Resource monitor attributes

Note

In Version 2.11 of Tivoli IT Director resource monitoring, memory monitors are not applicable to the AS/400 platform.

5.2.2 Critical monitors

With many tools, there is the possibility that resource monitors themselves can become a drain on system resources. IT Director resource monitoring on the other hand does not use too many resources, but it is still prudent to choose carefully the attributes you wish to monitor.

We selected five attributes that will give you an overview of the AS/400 system's resource usage. These are shown in Table 3.

Table 3. Critical monitor attributes

Attribute	What does it do?
CPU Utilization, percent (Found under System statistics)	Shows what percent of the CPU is being used.

Attribute	What does it do?
System ASP used, percent (Found under System statistics)	Shows what percent of the disk space is being used.
Jobs in system (Found under Job statistics)	Shows how many jobs are currently running in the system. If the CPU utilization is high, it may be due to many jobs running on the system.
Batch jobs in system (Found under Job statistics)	Shows the number of batch jobs currently running in the system. A large number of batch jobs can also cause high CPU utilization.
Users signed on (Found under User statistics)	Number of users currently logged into the system. The number of users can greatly affect the number of jobs and batch jobs in the system.

5.2.3 Publishing monitors on the Web site

After you have chosen the attributes to monitor, you can choose to monitor them on the Systems Management Web site. If you have not created the Web Site yet, refer to 5.9, "Internet services" on page 137 for information on how to set up your Web site. If you have set up your Web site, but have not enabled **Monitor Publishing**, you must go to Web Site Builder.

In the Web Site Builder window you must select the **Enable Monitor Publishing** checkbox under Page Options. See Figure 68 on page 82.
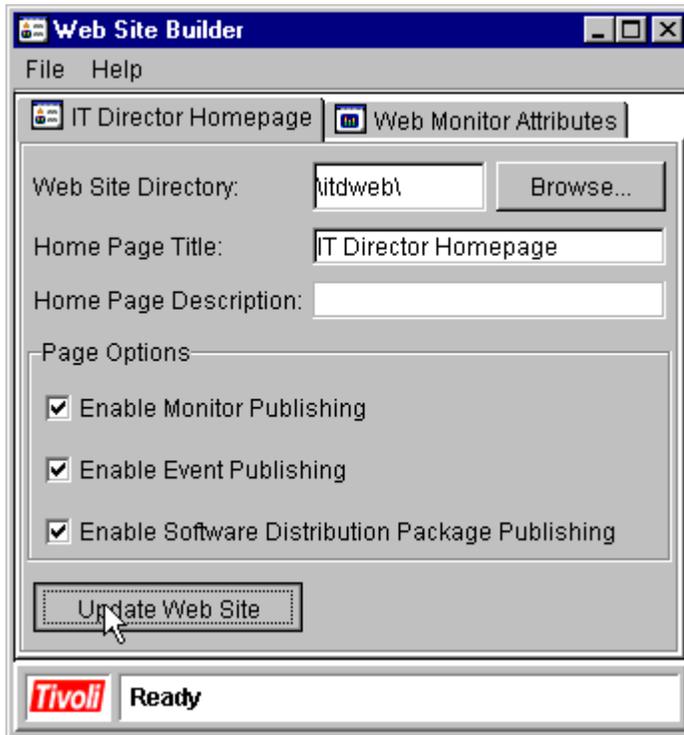
Figure 68. Enabling Monitor Publishing selection

To publish the monitors on the site, start the **Resource Monitors** task on a machine or a group and add the attributes you wish to monitor to the **Selected Resources** table.
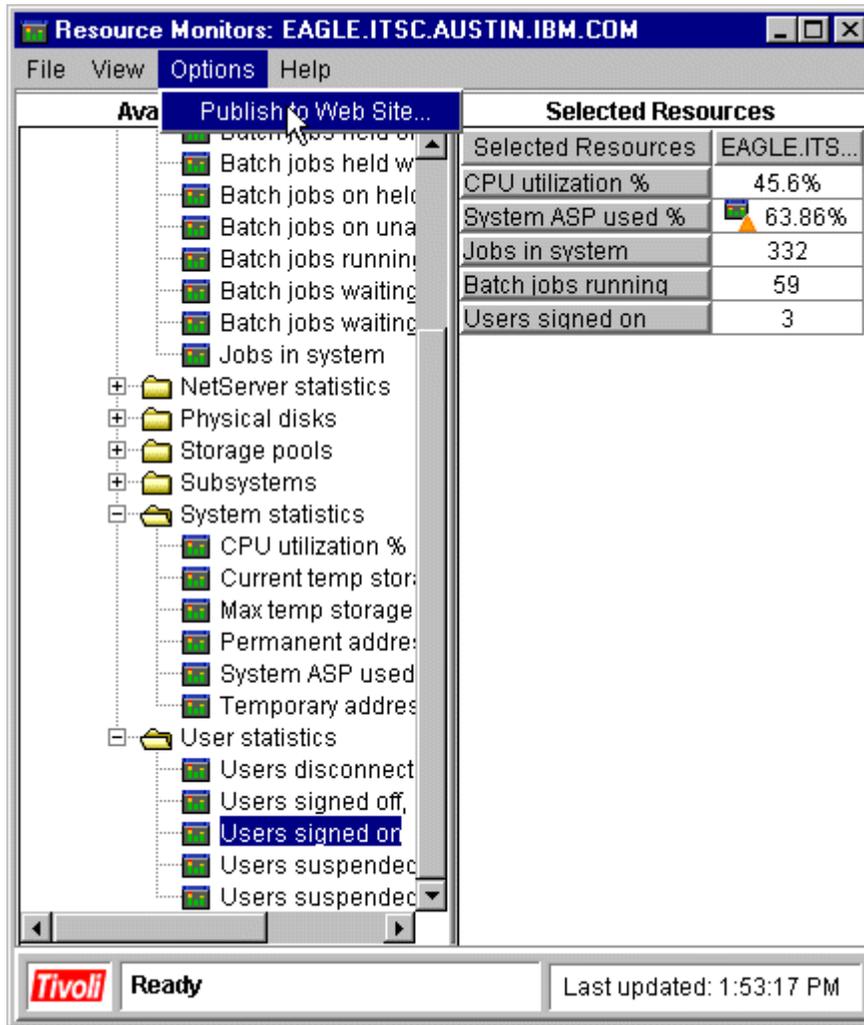
Figure 69. Publishing monitors on the Web site

After all your attributes have been added to the table, choose **Options** and **Publish to Web Site**.

You will then get a dialog asking for a Monitor Name, Publishing Interval, and Maximum Web Table Entries.

The number of entries is something you will want to think about. If you only want to have the latest data, then a few entries will be sufficient, and old ones will be automatically removed. But, if you wish to be able to see the history as

well as the current readings, then set the maximum number and publishing interval, accordingly. With a two hour publishing interval and 240 table entries, you will get 20 days of history.
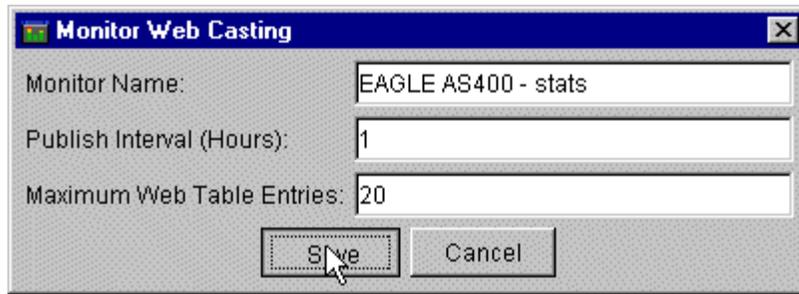
Figure 70. Web publisher settings

Click the **Save** button to publish your monitor. You can now go to the Web site and view it under the Resource Monitors page.
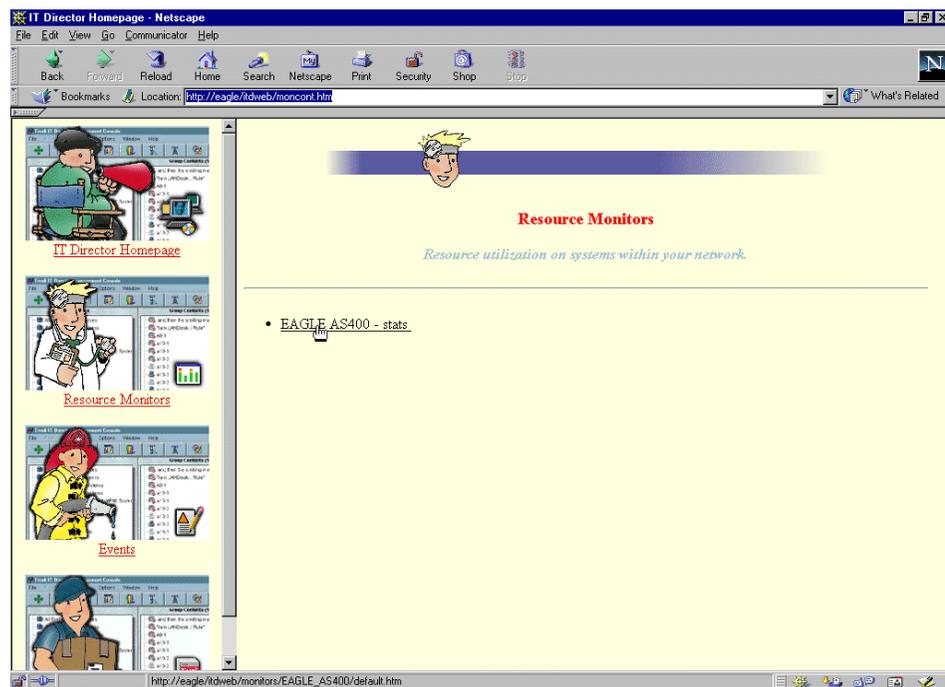
Figure 71. Selecting the monitor to view

If you do not have any resource monitors, you should try pressing the **Reload** button in your browser or try clearing the cache. When you see the monitor you created, click its name to open the list of entries.
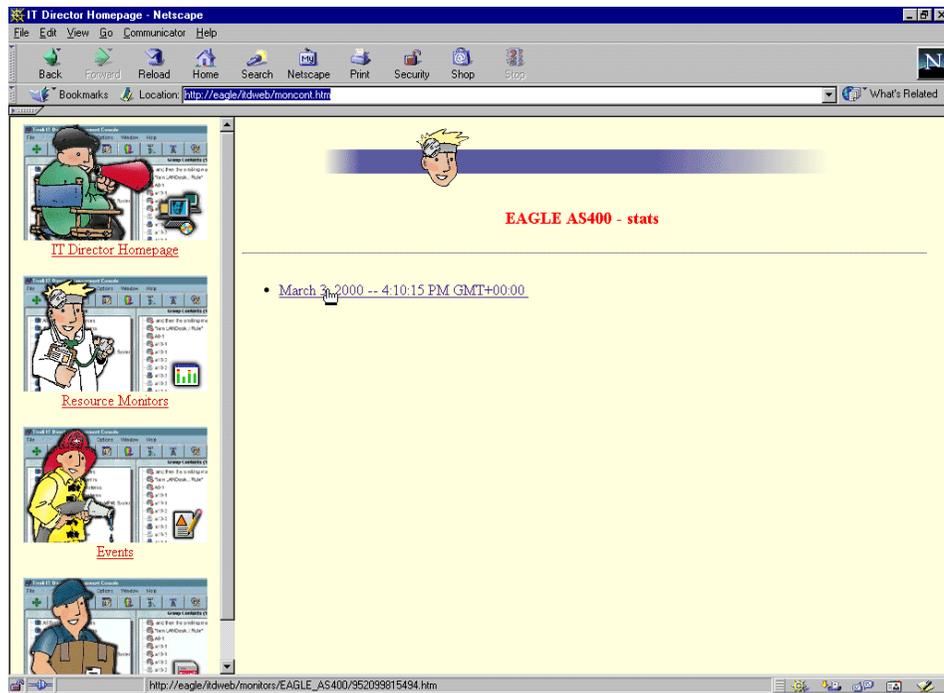
Figure 72. Selecting the time

Here, you can select from both the present and past monitor entries. Click the entry you wish to view.
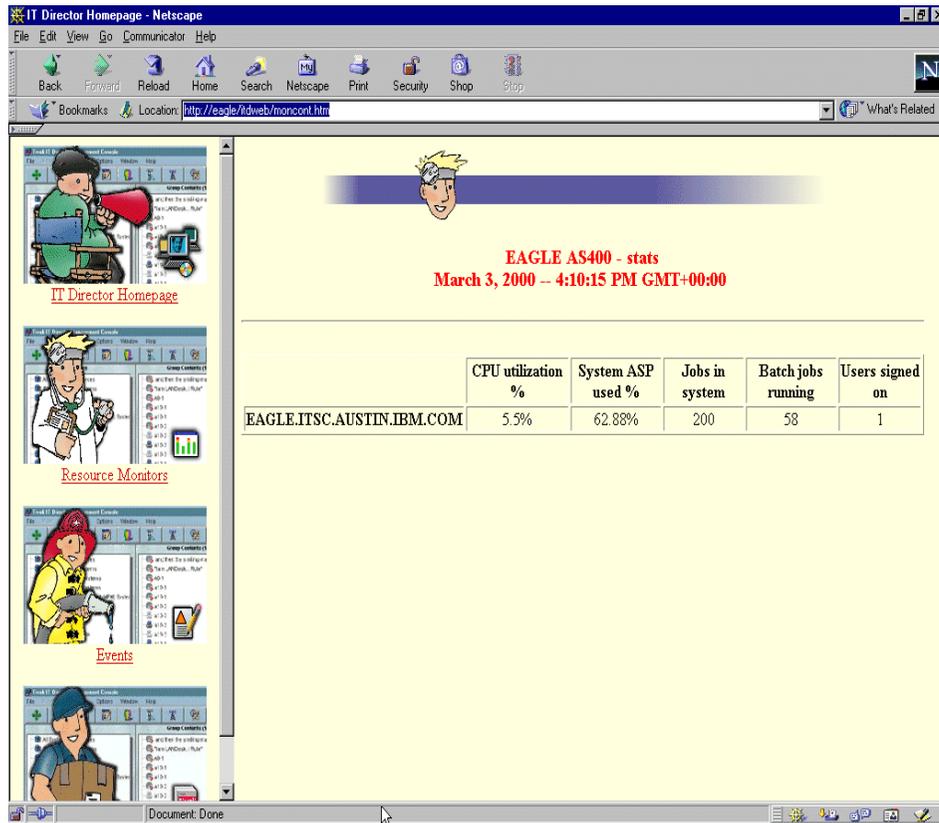
Figure 73. Monitor data

The screen will show you a time-stamped entry with all of the chosen attribute values.

5.2.4 Removing monitors from the Web site

To remove a monitor from the Web site, go to the Web Site Builder and click the **Web Monitor Attributes** tab. Choose the monitor you wish to remove and click **Delete**.
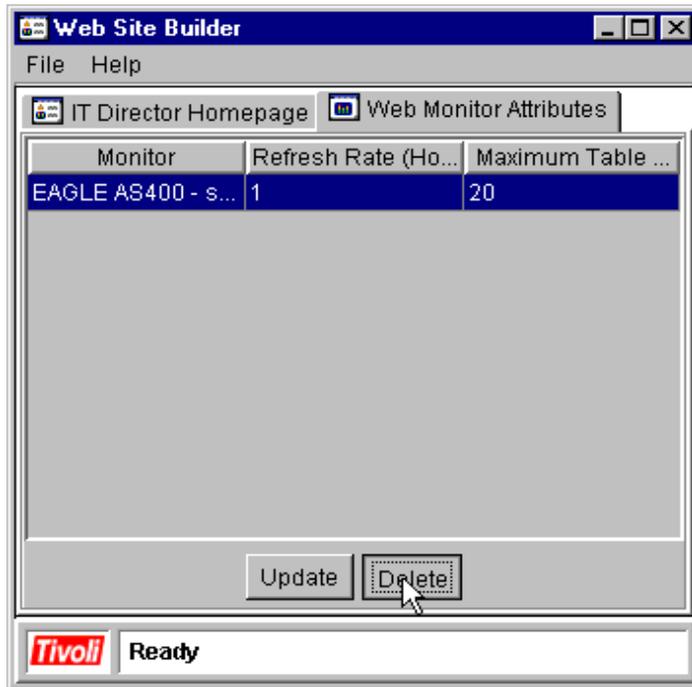
Figure 74. Removing monitors from the Web site

You when asked to confirm your choice, answer **Yes** and you will get a message confirming that the monitor has been removed.

5.2.5 Available AS/400 attributes

A list of all attributes that are available for the AS/400 platform is shown in Table 4.

Table 4. All available monitors for AS/400

Category	Available attributes
I/O Processors	Auxiliary I/O processor use (percent)
	IOP all communication use (percent)
	IOP disk use (percent)
	IOP LAN use (percent)
	IOP memory free (KB)
	IOP optical use (percent)
	IOP SDLC use (percent)
	IOP tape use (percent)
	IOP twinaxial use (percent)
	IOP operational status
	IOP system function use (percent)
	Primary I/O processor use (percent)
Job Queues	Job queue status
	Jobs in queue
Job Statistics	Batch jobs ended, output waiting
	Batch jobs ending
	Batch jobs held on job queue
	Batch jobs held while running
	Batch jobs on held job queue
	Batch jobs on unassigned job queue
	Batch jobs running
	Batch jobs waiting for messages
	Batch jobs waiting to run
	Jobs in system

Category	Available attributes
NetServer Statistics	Average response time (milliseconds)
	Duplicate sessions
	File opens/minute
	Kbytes received per minute
	Kbytes sent per minute
	Password violations
	Print jobs queued/minute
	Session errors/minute
	Session starts/minute
Physical Disks	Disk arm utilization (percent)
	Disk average queue length
	Disk mirroring status
	Disk operational status
	Disk processor utilization (percent)
	Disk read commands/minute
	Disk read Kbytes/minute
	Disk space free (MB)
	Disk space used (percent)
	Disk write commands/minute
	Disk write Kbytes/minute
Storage Pools	Active to ineligible (transitions/minute)
	Active to wait (transitions/minute)
	Database faults per second
	Database pages per second
	Non-database faults per second
	Non-database pages per second
	Wait to ineligible (transitions/minute)

Category	Available attributes
Subsystems	Subsystem percent of job limit
	Subsystem active jobs
	Subsystem status
System Statistics	CPU utilization (percent)
	Current temp storage used (MB)
	Max temp storage used (MB)
	Permanent addresses used (percent)
	System ASP used (percent)
	Temporary addresses used (percent)
User Statistics	Users disconnected
	Users signed off, output waiting
	Users signed on
	Users suspended by group jobs
	Users suspended by system request

5.3 Event management

The Tivoli IT Director enables you to identify, categorize and handle events that you get from your managed network. These events can be categorized in the events filters—you can select the level of the severity and link those to event action plans. Using event action plans with resource monitoring allows you to manage a large network of Agents from a single point. You can manage from anywhere and at anytime.
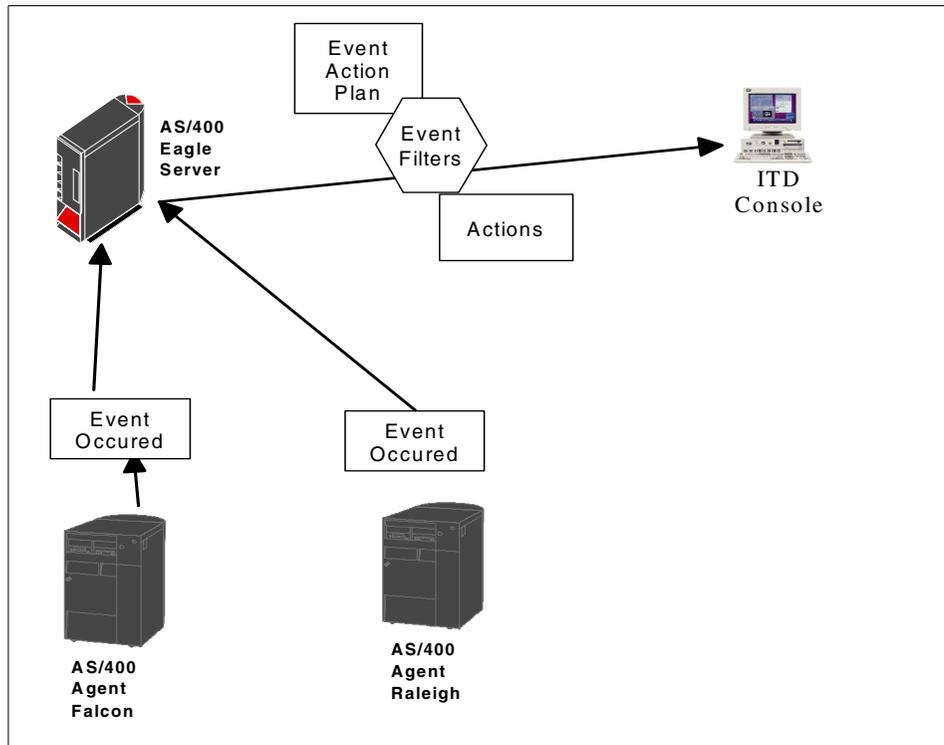
Figure 75. Event management

Event management consists of the following:

- An *event* is a message stating that something has happened on the managed system. It contains severity and event type information.

- An *event filter* describes a set of characteristics (for example, severity and event type), and if those characteristics are found in an event, the event is passed on through the filter to the actions.

- *Actions* define the steps to take in response to an event.

- An *event action plan* binds an *event filter* to one or more *actions*. For example, an event action plan can be created to send a page to the network administrator pager's, an e-mail message to a pool of administrators, or an event message on a Web page.

5.3.1 Understanding event management

The event management task consists of three components:

- Creating a new event action plan

- Creating new event filters
- Creating new actions

Using the Event Action Plan Builder, you can create new event action plans and event filters, and customize actions.
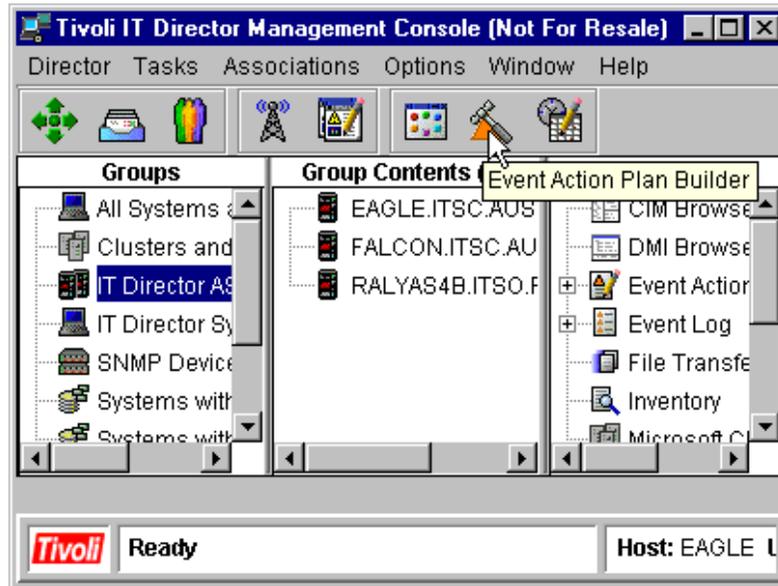
Figure 76. Event Action Plan Builder icon

Event filters and customized actions can then be logically associated to form an event action plan.
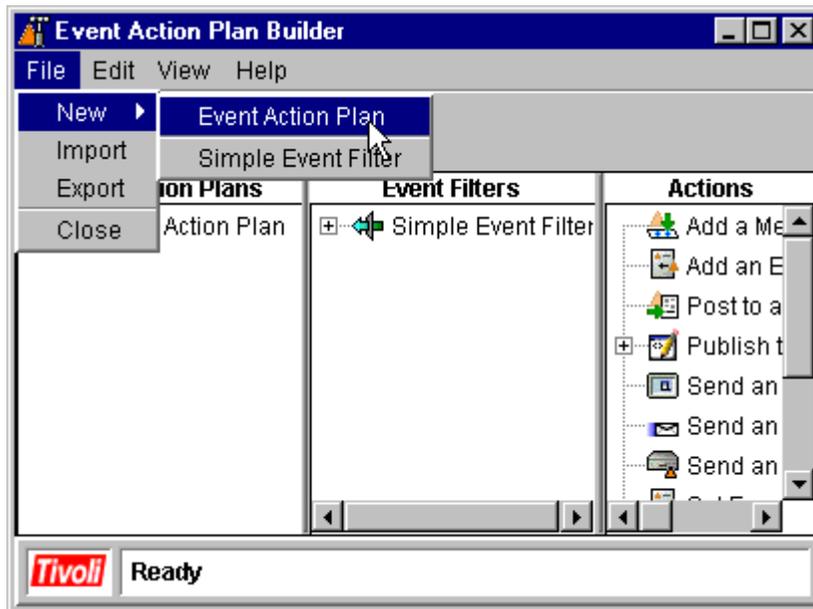
Figure 77. Create a new Event Action Plan

The main area of the Event Action Plan Builder contains three panels:

- *Event Action Plan* contains all of the defined event actions plans.

- *Event Filters* contains the list of predefined and user-created event filters available to assign to an event action plan.

- *Actions* contains the list of generic actions offered by the IT Director.

To build a new event action plan, you can drag one or more event filters from the Event Filters panel and drop them on the desired Event Action Plan icon.

5.3.2 Using predefined event filters

Predefined event filters are supplied by IT Director and listed in the Event Filters panel. They are designed to meet many of the basic monitoring requirements. But to meet customized demands, it is always recommended that you create your own event filters.

5.3.3 Creating an event filter

IT Director provides the event filter builder facility to create your own filters. To create a filter, you choose one or more event categories from the dialog window. See Figure 78.
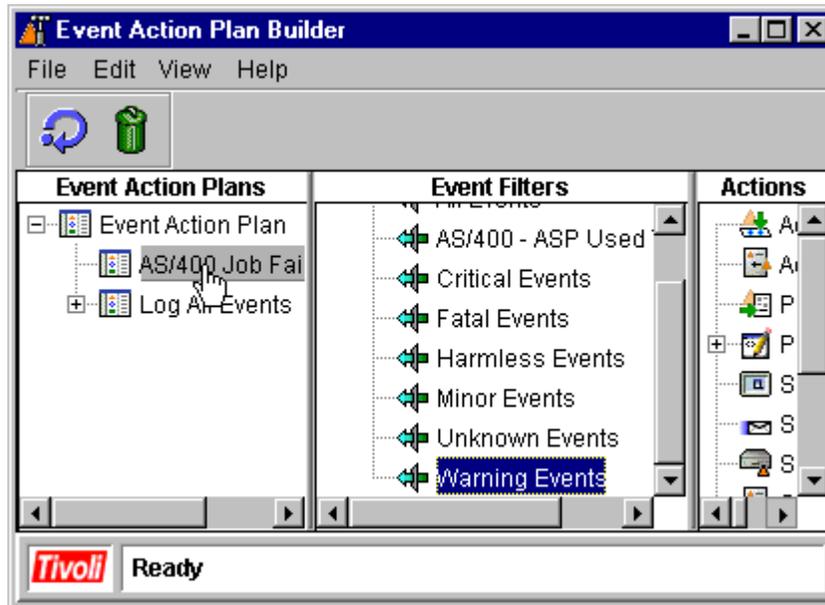
Figure 78. Dragging Event Filters to Event Actions Plans

To create a customized action, right-click on the action you wish to customize and select **Customize**. A dialog box will appear and you can input the customized data in it. When you are done, select **File -> Save** and give the action a descriptive name.
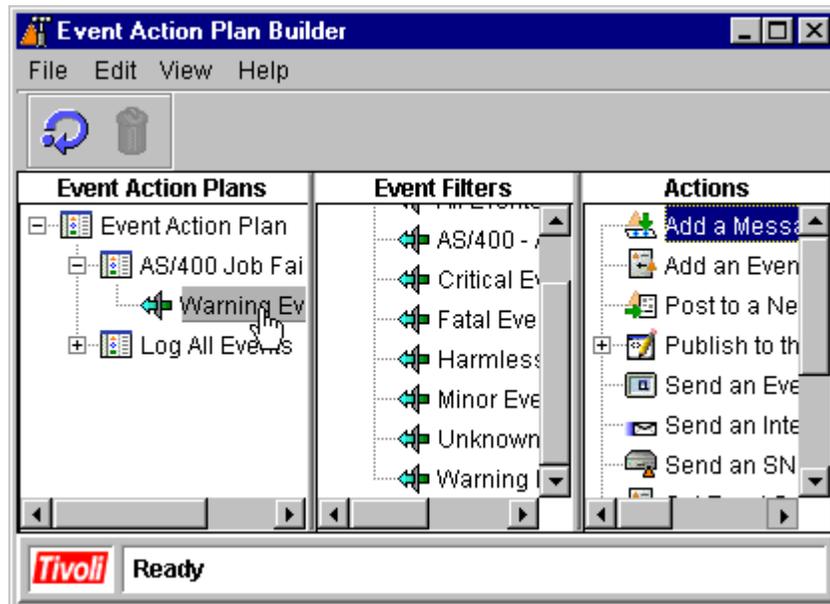
Figure 79. Add an Action to Event Filters

Then, drag one or more customized actions from the Actions panel onto the event filter.

The drag and drop function is one-directional—you can drag actions and filters to event actions plan, but you cannot drag an event action plan icon over to an event filter or action.

5.3.4 Event action plan example

In this section, we receive an event from an AS/400. This event comes from a message sent to the QSYSOPR message queue and routed to the IT Director Management Console. The following shows a Control Language Program example. To avoid many messages, we select only message IDs with the Alert attributes other than *NO. The Alert option is specified in the Message description and this value will be displayed by using the DSPMSGD command. The values are:

*NO No alert is sent.

*IMMED An alert is sent immediately, simultaneous with sending the message to QHST and/or QSYSOPR.

*UNATTEND An alert is sent immediately only when the system is running in unattended mode.

*DEFER   The alert is sent after local problem analysis.

The following screen shows an example of a Control Language Program.

```
 PGM
DCL &MSGID *CHAR 7
DCL &MSGDTA *CHAR 132
DCL &MSGF *CHAR 10
DCL &MSGFLIB *CHAR 10
DCL &MSGLEN *DEC  LEN(5 0)
DCL &MSGTXT *CHAR 132
DCL &MSGALR *CHAR 9
DCL &EVENT *CHAR  160
                 /* Receive Message from QSYSOPR MSGQ   */
              RCVMSG     MSGQ(QSYSOPR) MSGTYPE(*LAST) RMV(*NO) +
                          MSGDTA(&MSGDTA) MSGID(&MSGID) MSGF(&MSGF) +
                          MSGFLIB(&MSGFLIB)
              /*   Retreive Message Attributes           */
              RTVMSG     MSGID(&MSGID) MSGF(&MSGF) MSGDTA(&MSGDTA) +
                          MSG(&MSGTXT) MSGLEN(&MSGLEN) ALROPT(&MSGALR)
              /*  Generate an Event   If the message is Alertable */
              IF         COND(&MSGALR *NE '*NO') THEN(DO)
              CHGVAR     VAR(&EVENT) VALUE('AS/400.' *CAT &MSGTXT +
                          *CAT '.')
GENEVENT    TYPE(&MSGID) TEXT(&EVENT) SEV(*WARNING)
ENDDO
ENDPGM
```

The GENEVENT command sends events to the IT Director.

- Parameter Type is a variable that contains the first level message text.

- Parameter Text is mandatory. In this example, the message ID is sent.

To define the severity, retrieve the severity code from the message description. These codes are used to handle the severity code of the event. The code has a two-digit value ranging from 00 through 99. The higher the value, the more severe or important the condition. Table 5 can help you handle severity codes.

Table 5. Message ID and severity code

Severity code of the MSG ID	Severity code of GENEVENT
Less than or equal to 30	Harmless
Less than or equal to 50	Minor
Less than or equal to 70	Warning
Equal to or greater than 80	Critical

This command can be used in both environments—Interactive or Batch. This command also can be used to monitor CLP commands and send an event to the IT Director. Refer to the examples in Chapter 6, "AS/400 management scenarios" on page 147.

- The identifiers of the escape, notify, and status messages that can be sent by the CL commands are described in *AS/400 Programming Reference Summary V4R4*, SX41-5720

To begin creating the event action plan, open the Event Action Plan Builder, and if you have not already done so, create a new plan. We named ours AS/400 Job Failures Event. Next, you have to create a new filter. Right-click in the Event Filters section of the builder and from the New menu select **Simple Event Filter**.
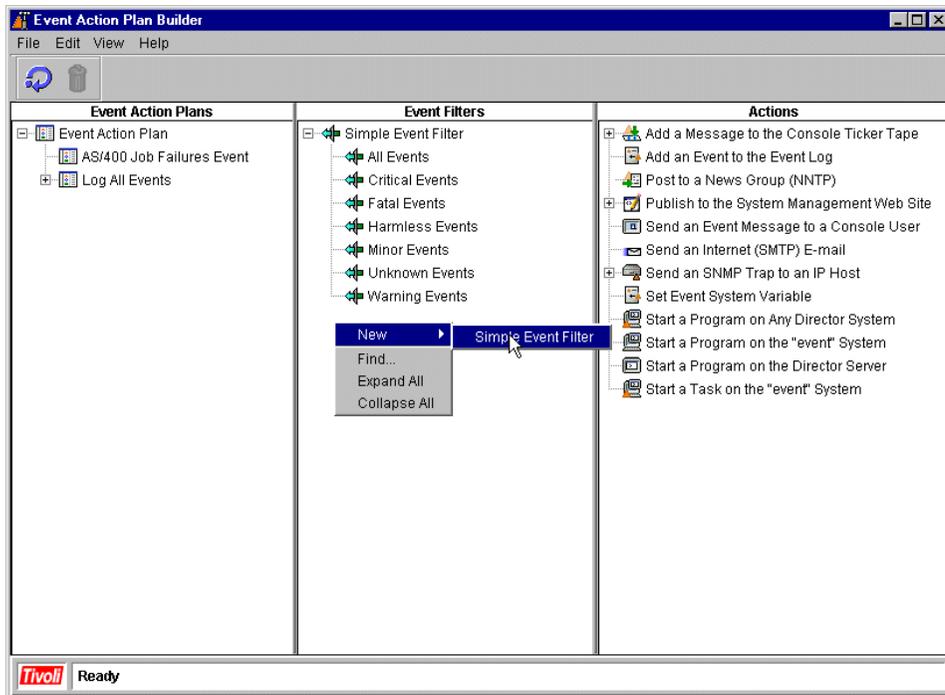
Figure 80. Creating a new Event Filter

The Simple Event Filter Builder: New screen will appear. Under the Event Type tab, select **AS/400** (if you do not find this entry, you have not had any error messages from your AS/400 yet, or you have set up the AS/400 batch job incorrectly). Then select **File** -> **Save As**.

Name the filter AS400 Events. Then, drag and drop the newly created filter onto the AS/400 Job Failures Event plan.

Next, create an action to send the event information to the Web site. Right-click on the **Publish to the System Management Web Site** icon and select **Customize**.
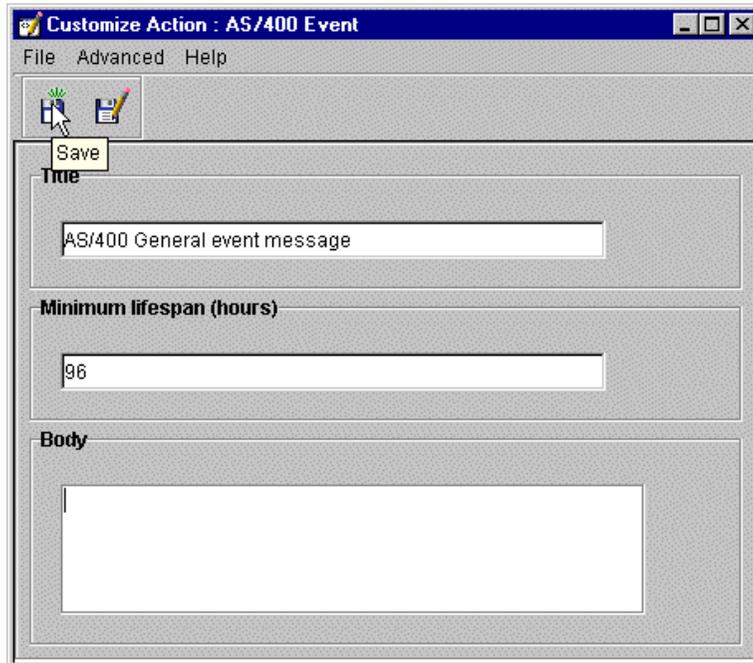
Figure 81. Customizing a Web message

Give it the title of `AS/400 General event message`, and the lifespan should be at least 96 hours. The Body field can be left empty. This enables the use of this single customized message in all AS/400 event messages.

Next, you need to drag and drop the newly created message onto the filter that you earlier placed under the plan.
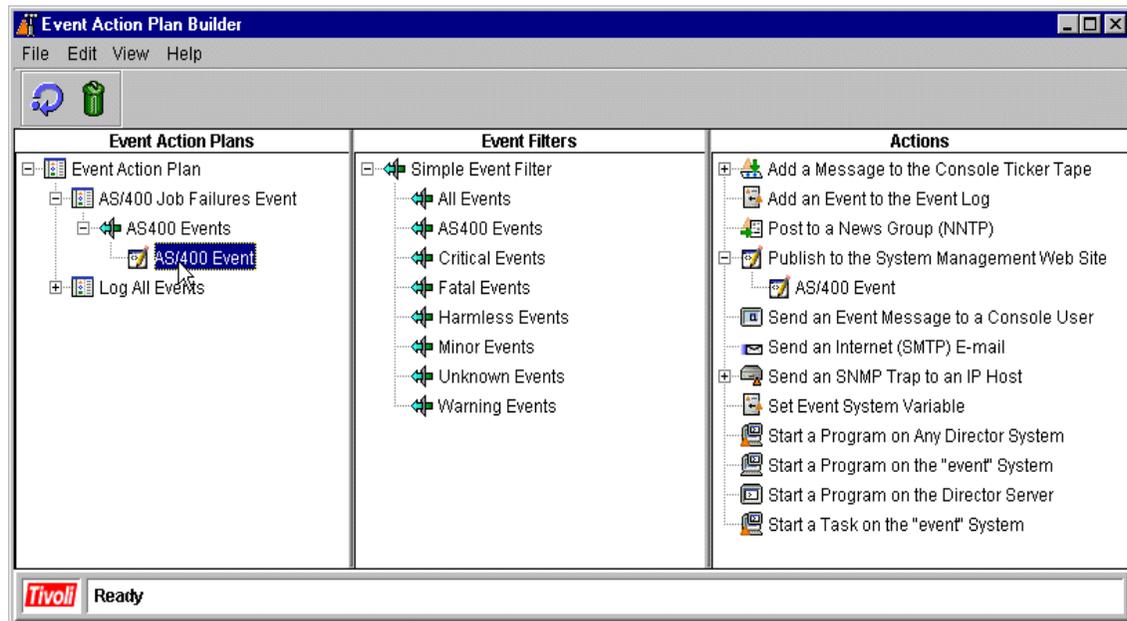
Figure 82. Adding the action to the plan

Now that you have completed the plan, you must move to the main console to assign the plan to a machine.

This is done by opening the **Event Action Plans** in the Tasks pane and then dragging and dropping the **AS/400 Job Failures Event** onto the target system (in this case, EAGLE).

Note

The target does not have to be a single machine; you can assign the same plan to more than one machine or a group. But the same batch job you created earlier must be on each of those machines.
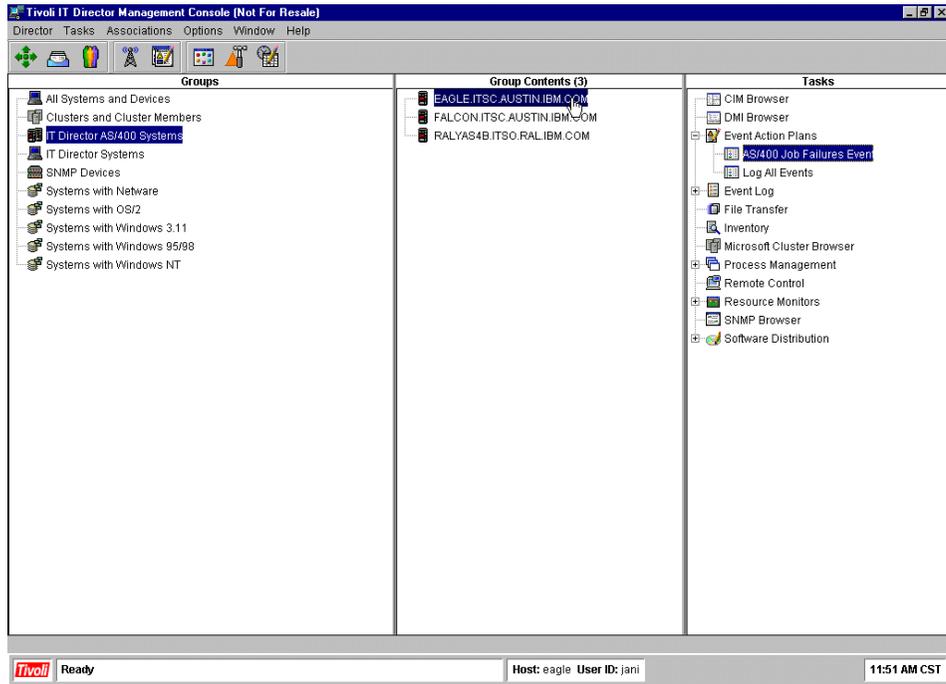
Figure 83. Implementing the plan on a machine

You have now implemented the plan. After you get an event on the AS/400, the information will be visible on the Web site.
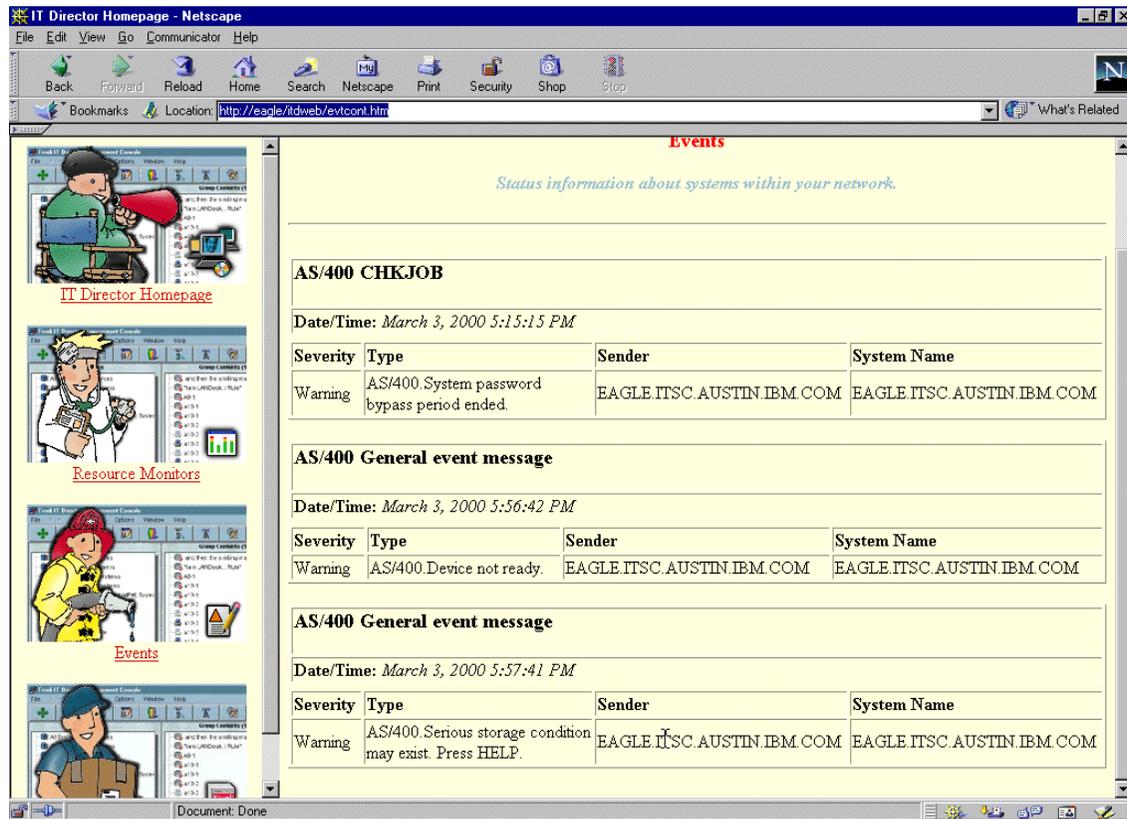
Figure 84. Viewing the event messages from the Web site

As you can see in Figure 84, the difference between these messages is in the *Type* part of the message. The System Name field shows where the message originated—a handy piece of information if you are running this plan on several machines.

5.4 Software distribution

While software distribution to AS/400 systems is not supported in this version of IT Director (see 2.4, "Future directions" on page 10 for more information on features in upcoming versions), you are able to distribute software to other operating systems, and you will also be able to use AS/400 systems as redirector servers.

For general information about software distribution, please refer to Chapter 9 of *Tivoli IT Director User's Guide*. And for detailed information, refer to the redbook *Software Distribution with Tivoli IT Director,* SG24-5493.

Some advantages of software distribution are:

- By creating one package, you can distribute by drag and drop to as many systems as you want.
- Scheduled distributions.
- Detailed logs on job progress.
- Ability to distribute software via the Web site.
- Redirector servers save your WAN bandwidth.

Figure 85 on page 103 shows an overview of the software distribution process, showing both a direct (IT Director Server to Agent) installation and redirected (IT Director Server to redirector to Agent) installation. Since the latter process stores the software package in the remote subnet, only one transmission across the WAN is needed.
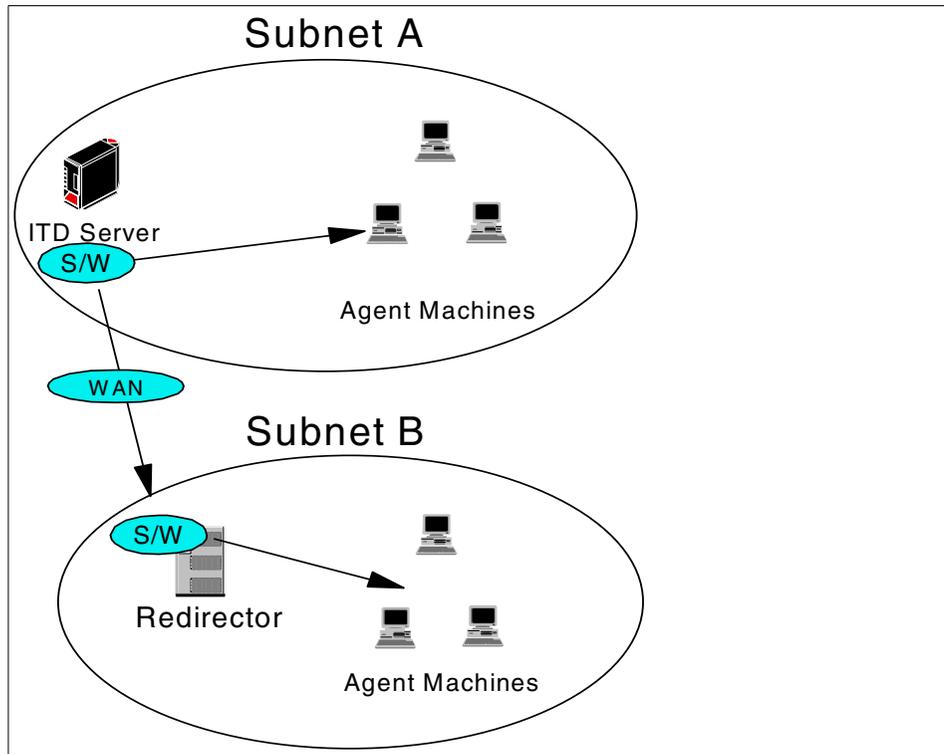
Figure 85. Overview of the software distribution process

The following sections demonstrate in practice the capabilities of software distribution.

5.4.1 Redirector servers

Redirector servers act as local storage of software packages in your remote networks, thus conserving valuable WAN bandwidth. For more information about configuring redirector servers with an AS/400 as the IT Director Management Server, please refer to 6.3, "Redirection from AS/400 ITD Server to NT redirector" on page 158 or 6.4, "Redirection from AS/400 ITD Server to AS/400 redirector" on page 173.

5.4.2 Distributing the software package in a Web site

Because software distribution is not yet available for AS/400, you can find detailed and up-to-date instructions in Chapter 9 of the *Tivoli IT Director User's Guide.*

5.4.3 Distributing Client Access Express for Windows 95 and NT

Since software distribution to AS/400 is not supported in Version 2.11 of IT Director, we instead provide an example of Client Access software distribution to desktop machines.

You will need the AS/400 Client Access Express CD-ROM or access to the installation files a local or remote drive. For this example, we used the CD-ROM with Z: as the CD-ROM drive letter.

The creation and distribution of the software package has three phases:

- Record installation preferences
- Create the package
- Distribute the package

5.4.3.1 Record installation preferences

AS/400 Client Access Express for Windows is installed using the InstallShield software, which supports the recording. This means that you have to install the software on a computer while recording all your choices. This way, you create a response file that can then be used by IT Director to automate the installation to other machines.

To begin, go to the Start menu and click **Run**. The dialog box shown in Figure 86 is displayed.
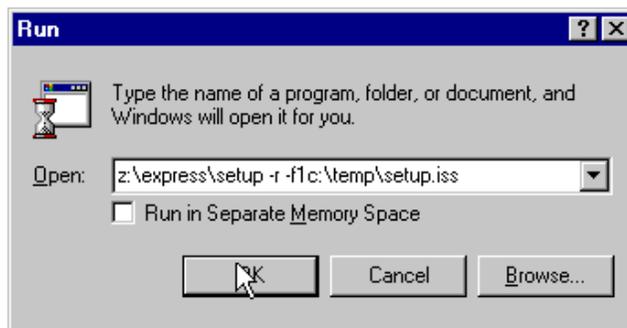
Figure 86. Starting the installation

Instead of just running `z:\express\setup` for normal installation, enable the recording with the `-r` switch and designate the name and path of the response file after the `-f1` switch. As shown in Figure 86, we used the default file name of setup.iss. Click **OK** to start the installation.

> **Note**
>
> Specifying a read-only path (such as a CD-ROM) for the response file will lead to the file not being created.

During installation, specify any settings and select any type of installation and combination of components you desire. These will be replicated on all machines that you use this installation package on.
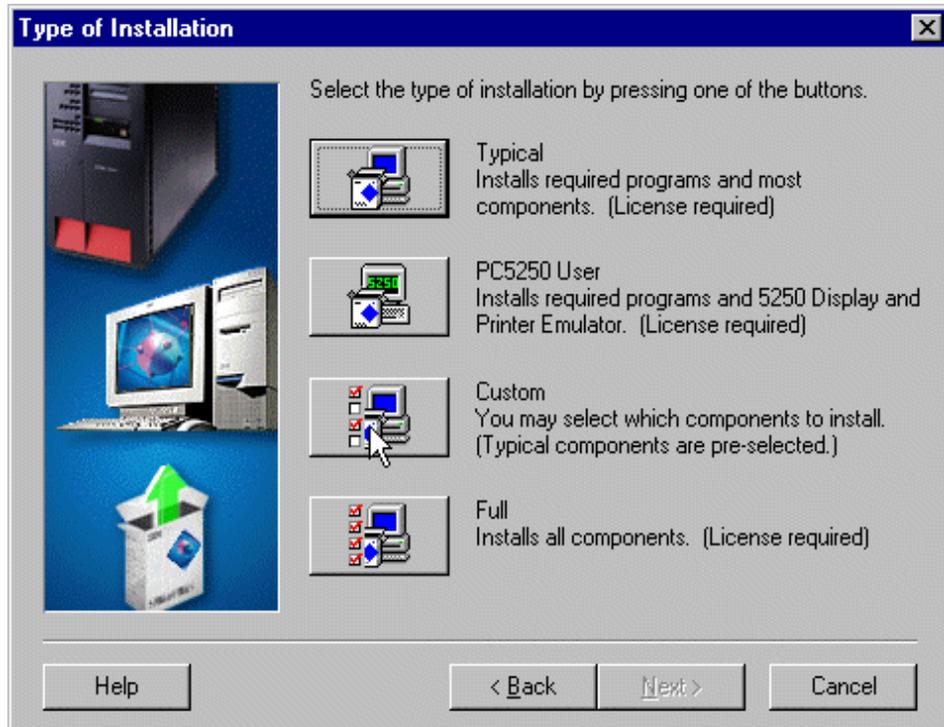
Figure 87. Selecting settings and installed components

After you have selected all the options, the installation will start.

Figure 88. Setup is running

After setup finishes, you will be asked if you wish to restart your machine now or later. This option is also recorded and will be replicated in every installation.

If you have a setup.iss file in your c:\temp directory (or whatever directory you specified after the -f1 switch), you have successfully created a recording of an installation.

5.4.3.2 Create the package

Now that the response file has been created, go to your IT Director Management Console and double-click **Software Distribution** to start the Software Distribution Manager. See Figure 89 on page 107.
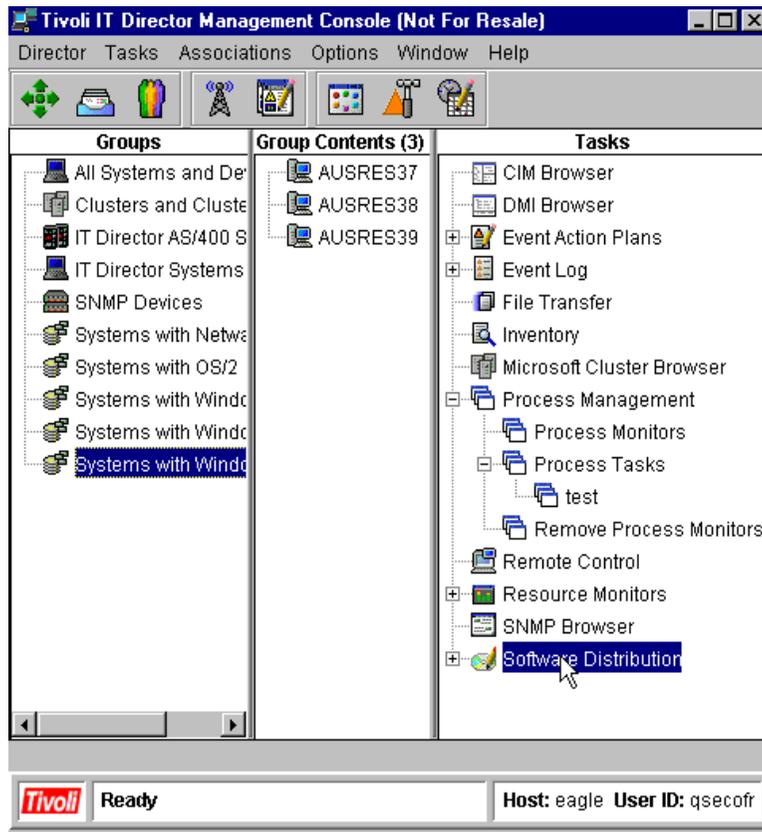
Figure 89. Starting the Software Distribution Manager

In the Software Distribution Manager window, open the **Wizards** folder and double-click **InstallShield**. This will open a program that guides you through the package creation process. See Figure 90 on page 108.
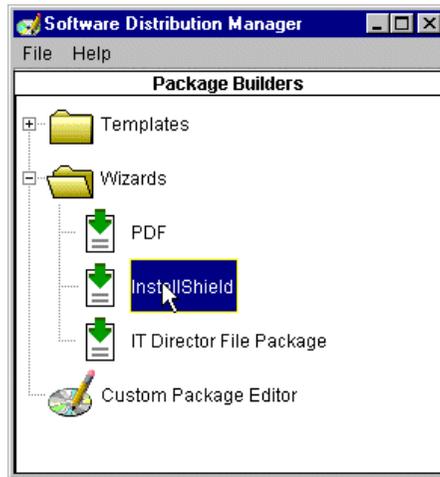
Figure 90. Starting the InstallShield Wizard

In the first screen of the Wizard, you must input the location of the installation files (in this case, the original CD-ROM) and the location of the response file.
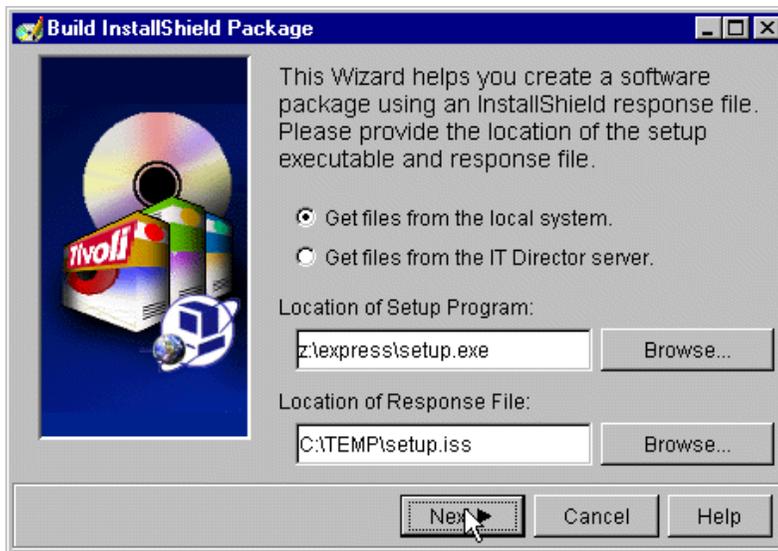
Figure 91. Inputting file locations

When you are done, click the **Next** button to proceed to the next window.

Next, you can set the package name (we left the default name in place, you might want to rename it to better suit your naming conventions). You can also choose to publish this package in a Web site (for more information on Web services, refer to 5.9, "Internet services" on page 137). No additional command line parameters are required for this installation.
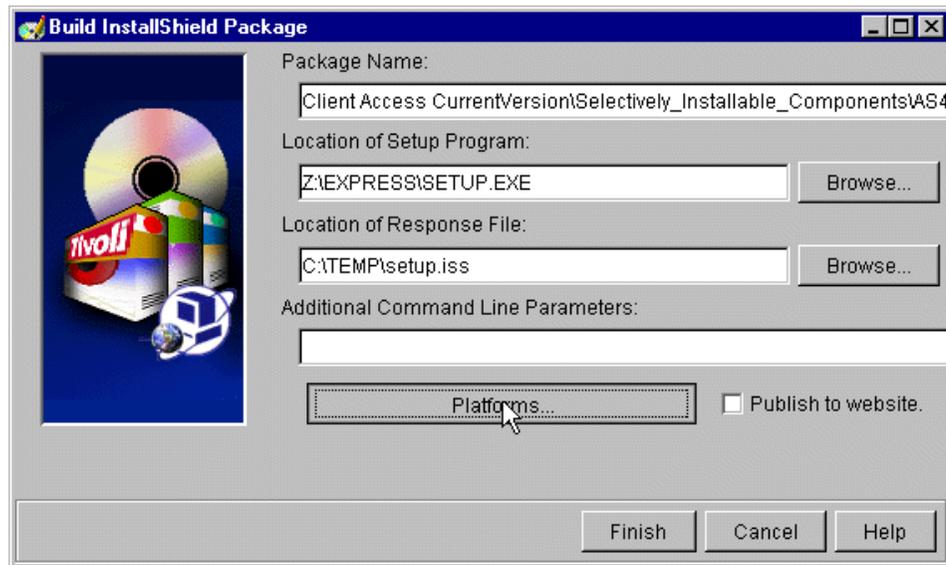
Figure 92. Package settings

Click the **Platforms** button to choose which platforms will be supported by this installation package.

This installation of Client Access Express is only for Windows 95 and NT, so uncheck the box beside Windows 3.1 and click **OK**, as shown in Figure 93 on page 110.

Figure 93. Selecting Target Platforms dialog

You are then returned to the Build InstallShield Package window. Choose
Finish to start the creation of the package.

Figure 94. Package creation is running

The length of this phase varies according to the speed of your server and the
size of the installation files. It generally takes about 5 to 10 minutes.

When the window disappears, the package creation is done.

5.4.3.3 Distribute the package
Now that the package has been created, you can start distributing software to
client machines. Start by selecting the package you just created from
software distribution and drag and drop it onto the target machine(s).
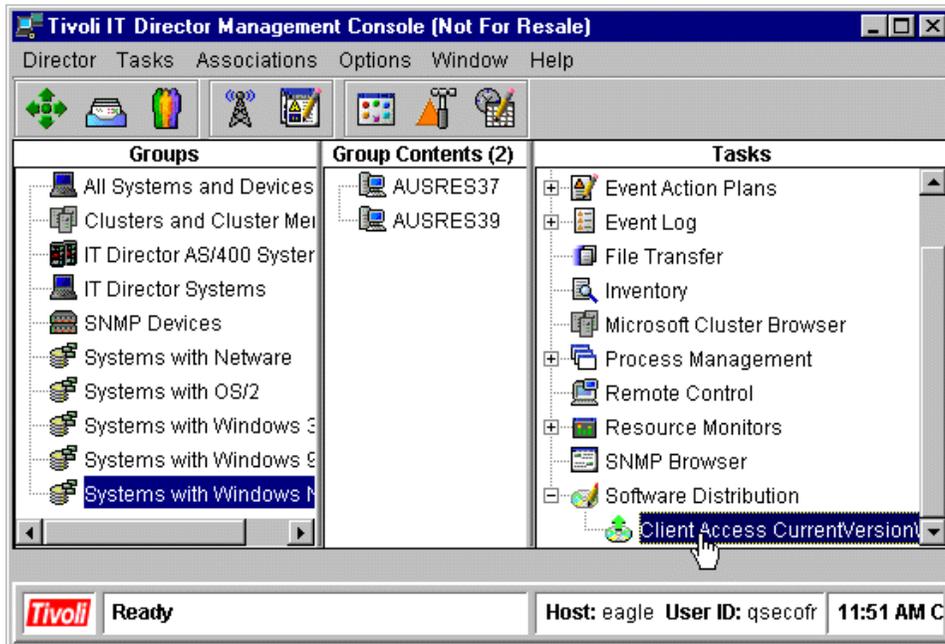
Figure 95. Starting distribution

You can also drag and drop the package onto a group, such as Systems with Windows NT. This will distribute the software to all systems within the group.

You will then be asked if you wish to schedule this task to happen later or if you wish to execute the task now. If you choose to use the scheduler, please refer to 5.8, "Task scheduler" on page 129. Otherwise, choose **Execute Now**.
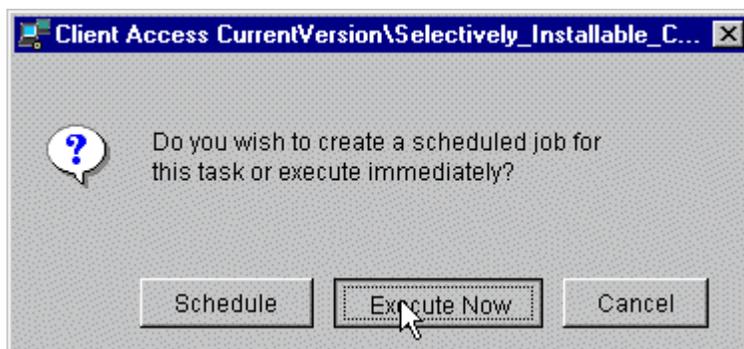
Figure 96. Choosing an execution time

After choosing **Execute Now,** the distribution status window is displayed. In this window, you can follow the status of the distribution. If you wish to get more details of the distribution, right-click on the machine you wish to follow and select **View System Log** as shown in Figure 97.
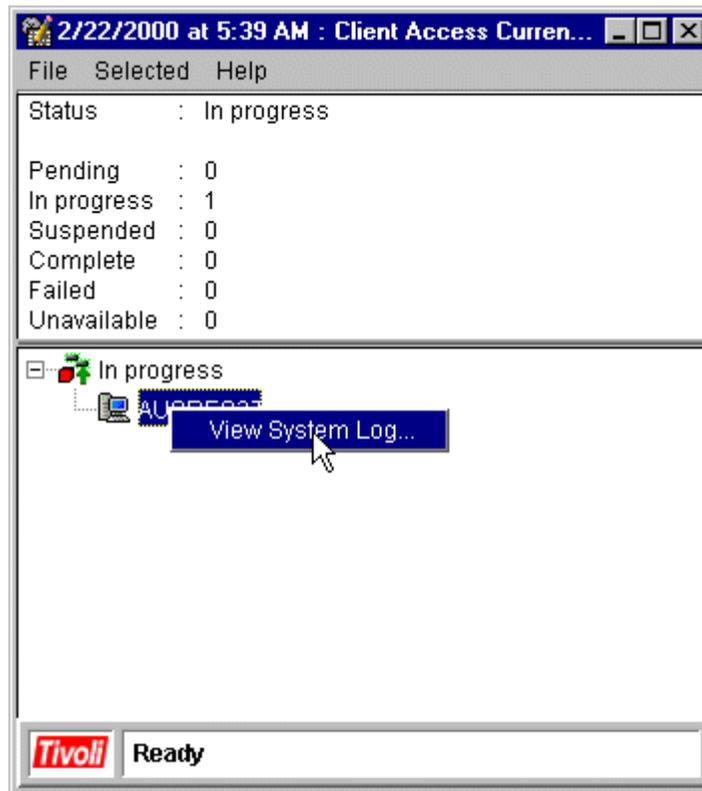
Figure 97. Viewing distribution status

By default, the system log window will not give you detailed information. But you can change this from the View menu under **Detail**. See Figure 98 on page 113.
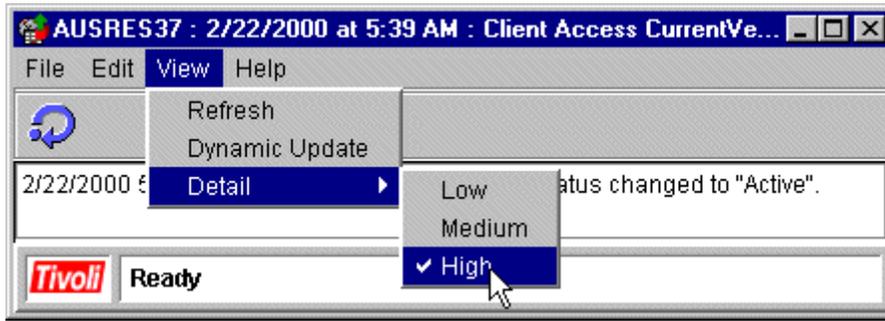
Figure 98. Setting the level of detail

The information will not refresh automatically unless you choose **Dynamic Update** from the View menu. If you wish to update the information manually, you can click the **Refresh** icon shown in Figure 99.
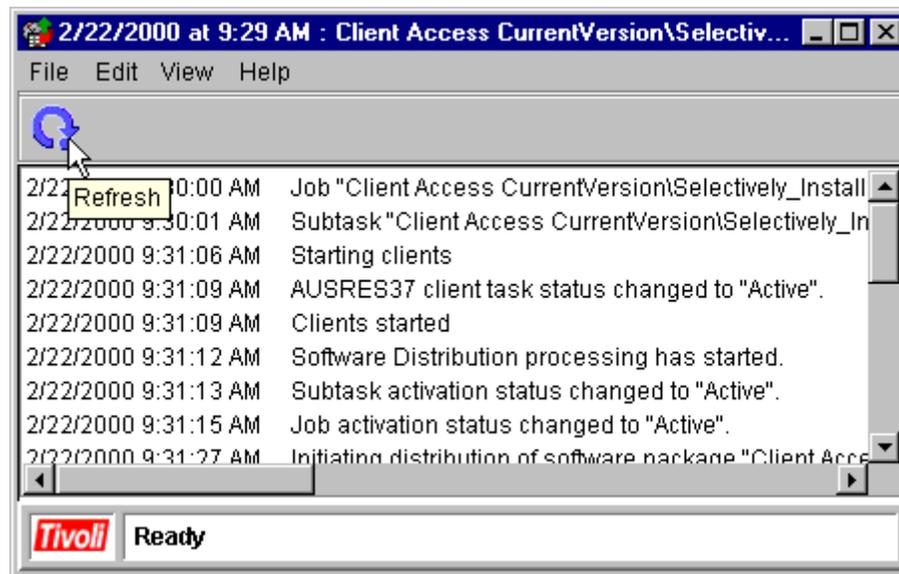
Figure 99. Refreshing manually

After the installation is finished, machine(s) that report completion of the task are shown under the Complete group. See Figure 100 on page 114.
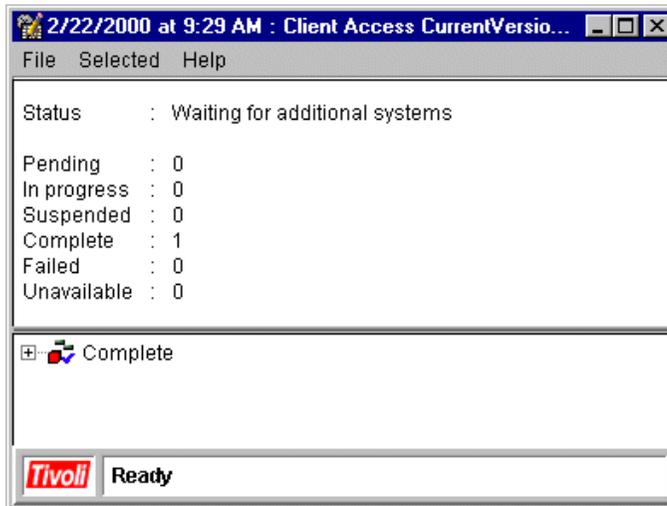
Figure 100. Installation complete

You have now installed Client Access Express on the target machine(s).

5.5 File transfer

The file transfer task enables you to transfer files from multiple locations. You also can delete files, create new directories, and so on.

You can transfer files and directories between:

- The IT Director Management Console local system and the IT Director Management Server system.
- The IT Director Management Console local system and a native managed system.
- The IT Director Management Server system and a native managed system.

Note

The file transfer task is not supported on the AS/400 version of IT Director Agent, but you can transfer files to and from the IT Director Management Server even if the server is the AS/400 version.

An example is shown in Figure 101 on page 115.
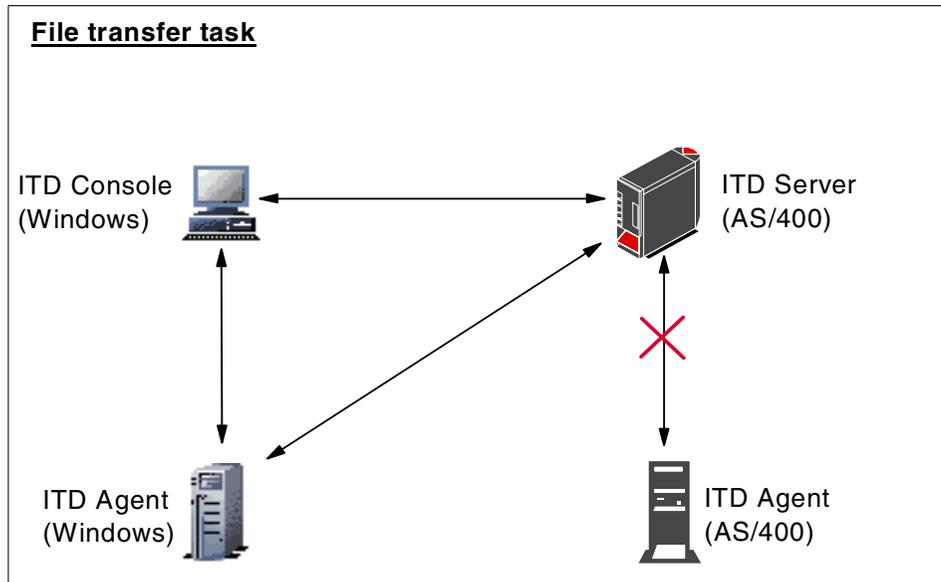
Figure 101. File transfer task overview

For information about the use of the file transfer task on other versions of the IT Director Agent, refer to Chapter 10 of the *Tivoli IT Director User's Guide*.

5.5.1 File transfer task example

This section describes an example of a file transfer task. A file will be transferred from the Tivoli Management Agent on Windows NT to the IT Director Management Server on AS/400. A new directory is also created on the IT Director Management Server. See Figure 102.
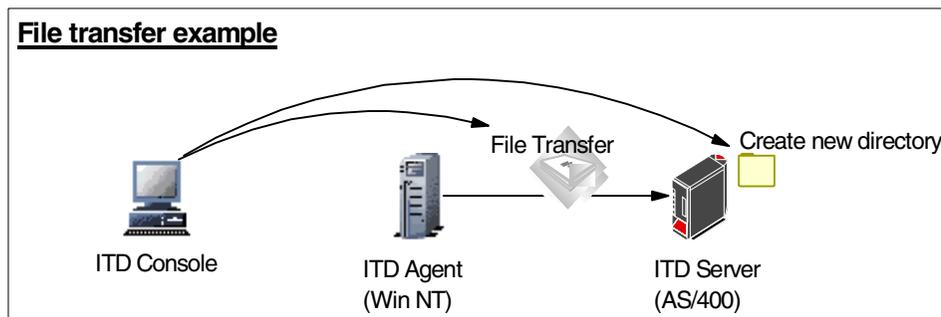
Figure 102. File transfer example

Complete the following steps:

1. On the IT Director Management Console, right-click the machine that you wish to be the other party in the file transfer task (the other is the local IT Director Management Console system by default, but this can be changed to the IT Director Management Server), and select **File Transfer**. See Figure 103.
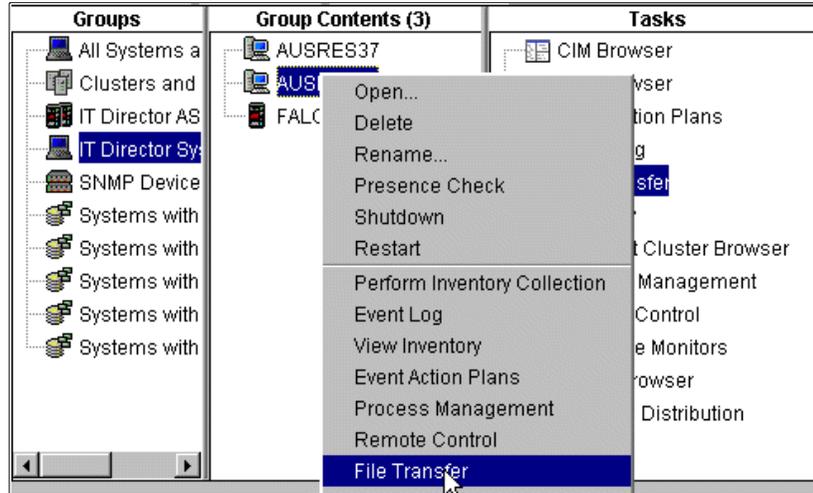
Figure 103. File Transfer selection

2. The File Transfer window will be displayed, and you can select the Source File System and Target File System. In this example, the IT Director Management Server (AS/400) is the Source File system and AUSRES39 (Windows NT Agent) is the Target File System. You can use drag and drop to transfer the file(s), or a directory. See Figure 104 on page 117.
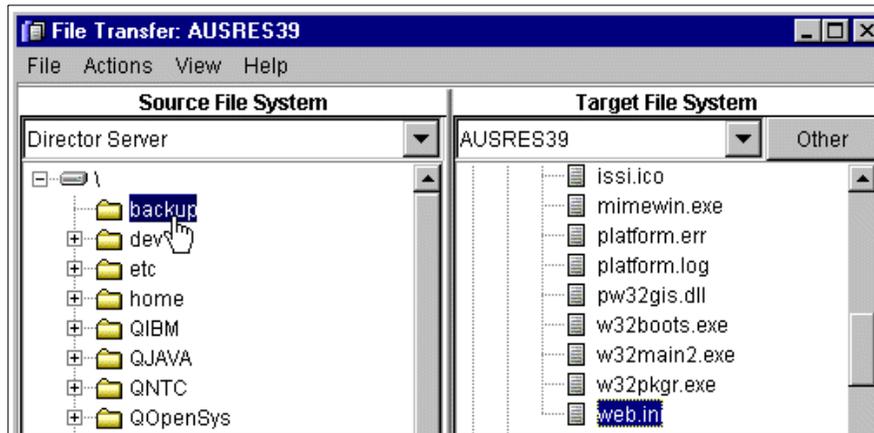
Figure 104. File Transfer window

3. After the transfer starts, status window appears, and you see the file transfer progress as shown in Figure 105.
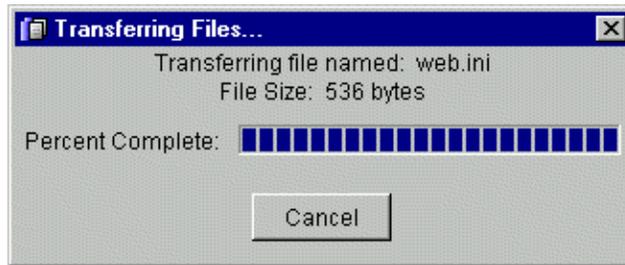
Figure 105. File transfer status window

4. To create a new directory, right-click on the directory that you want to create and select **Create Directory**. See Figure 106 on page 118.
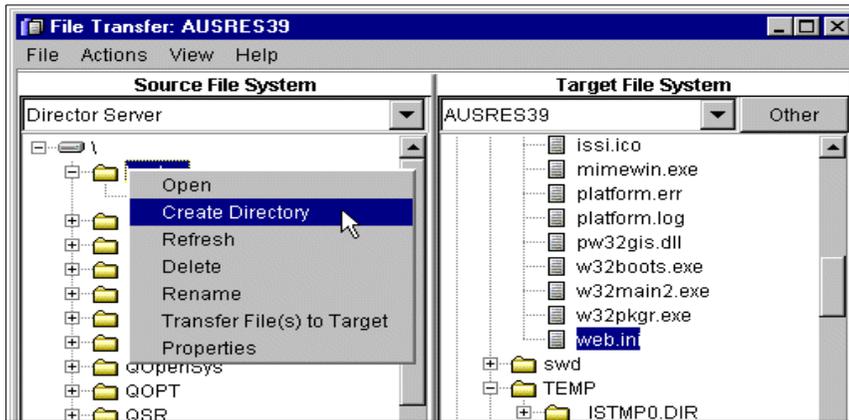
Figure 106. Creating a new directory

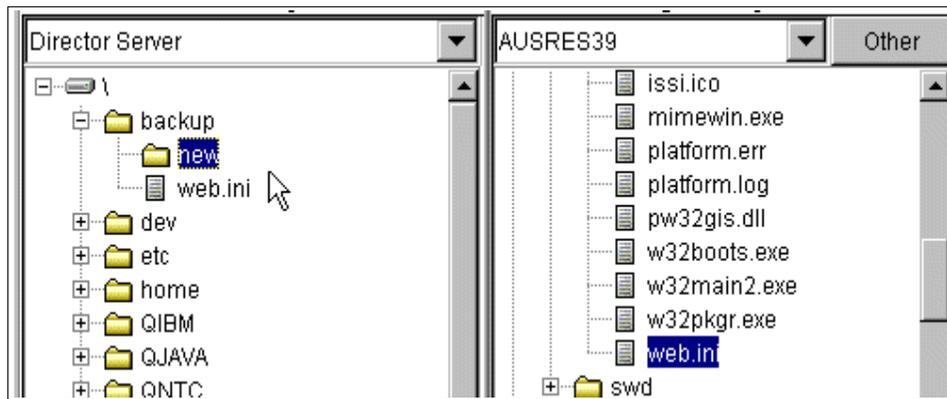5. The transferred file and the newly created directory is then shown in the window. See Figure 107.

Figure 107. Completion of file transfer

> **Note**
>
> When you transfer a file or a directory to the IT Director Management Server on AS/400, or create a new directory on it, the file transfer is done by the default user profile (set it using the `CHGITDSVRA` command). But directory management (transferring a directory and creating a new directory) is done by the TIVITDSVR user profile. If you transfer a directory containing files, directory transfer (create) is done by the TIVITDSVR profile and the files are created by the default user profile. This user profile is the object's owner. For more detail about object ownership, refer to *OS/400 Security - Reference*, SC41-5302.

The file transfer task is not supported on the AS/400 version of the IT Director Agent, but you can transfer files to and from the IT Director Management Server even if the server is the AS/400 version. There is also a workaround in the scenario chapter in 6.5, "File transfer to and from AS/400: A workaround" on page 181.

For information about the use of the file transfer task on other versions of the IT Director Agent, please refer to Chapter 10 of the *Tivoli IT Director User's Guide.*

5.6 SNMP management

Simple Network Management Protocol (SNMP) enables you to perform inventory management, resource monitoring, and event management for network devices, such as HUBs, routers, network servers, and network printers. AS/400 is an SNMP-*enabled* system by default.

Please refer to Chapter 11 of the *Tivoli IT Director User's Guide* for more information about SNMP management.

For advanced SNMP management in the IT Director environment, Tivoli provides a product called Tivoli Netview IT Director Edition. Refer to the following URL for more information about this product:

```
http://www.tivoli.com/products/index/it-director_netview/index.html
```

Normally, you will have two different representations of the same AS/400 machine in IT Director:

 This icon represents AS/400 Tivoli Management Agent.

 This icon represents SNMP object icon.

For example, if you want to have the resource monitors task target, which has the SNMP attributes of the AS/400 machine, you must drag and drop the resource manager on the SNMP icon (or right-click on the icon and choose **Resource Monitors**).

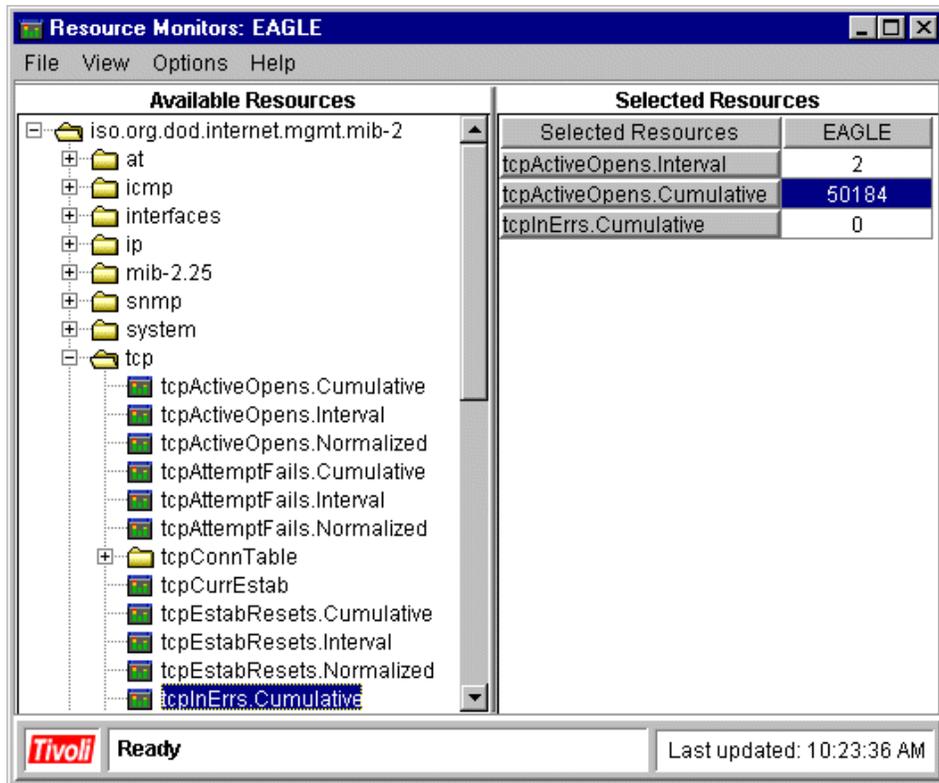You can use the resource monitor as usual, the only difference will be the attributes as shown in Figure 108.


Figure 108. SNMP resource monitors

SNMP resource monitor attributes example
The same principle applies to all other tasks. If you wish to target the AS/400 system(s), use the AS/400 icon or group as a target, and if you wish to target SNMP device(s), use the SNMP icon or group as a target.

5.6.1 AS/400 SNMP settings

As previously mentioned, you can use the AS/400s SNMP services by default. SNMP starts automatically if AS/400 TCP/IP is active. If you cannot find AS/400 SNMP devices on the console, please perform the following.

Type the NETSTAT *CNN command on the AS/400 command line. You will then see the AS/400 TCP/IP Connection Status screen. Check that the local port column snmp entry exists as shown in Figure 109.
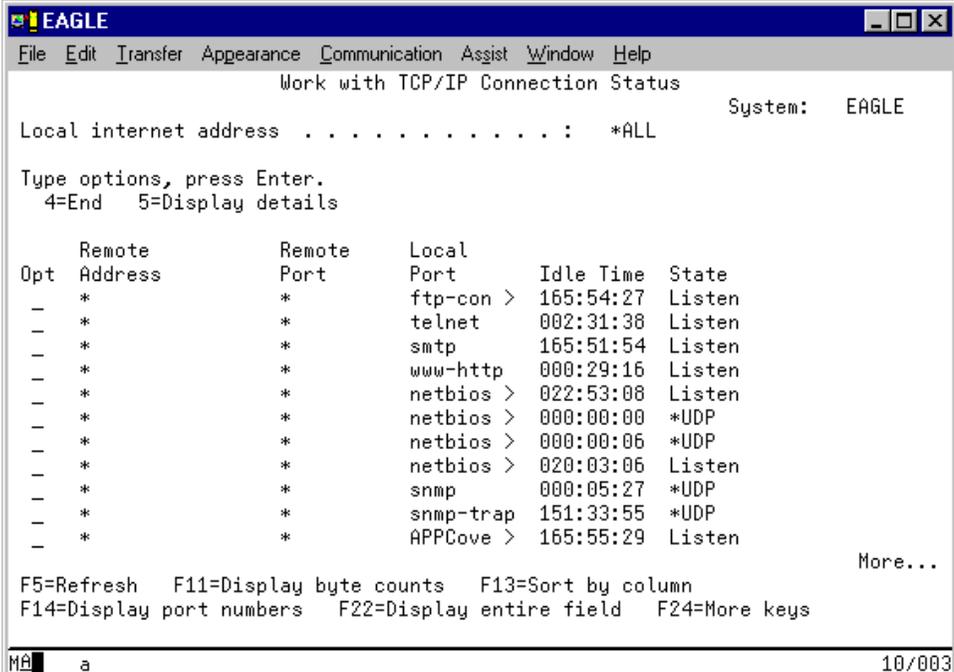
```
EAGLE                                                                  _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Work with TCP/IP Connection Status
                                                        System:    EAGLE
Local internet address  . . . . . . . . . . . :      *ALL

Type options, press Enter.
   4=End    5=Display details


       Remote              Remote       Local
Opt  Address              Port         Port         Idle Time  State
  _    *                   *            ftp-con >   165:54:27  Listen
  _    *                   *            telnet      002:31:38  Listen
  _    *                   *            smtp        165:51:54  Listen
  _    *                   *            www-http    000:29:16  Listen
  _    *                   *            netbios >   022:53:08  Listen
  _    *                   *            netbios >   000:00:00  *UDP
  _    *                   *            netbios >   000:00:06  *UDP
  _    *                   *            netbios >   020:03:06  Listen
  _    *                   *            snmp        000:05:27  *UDP
  _    *                   *            snmp-trap   151:33:55  *UDP
  _    *                   *            APPCove >   165:55:29  Listen
                                                                 More...
F5=Refresh    F11=Display byte counts    F13=Sort by column
F14=Display port numbers   F22=Display entire field   F24=More keys

MA█    a                                                          10/003
```

Figure 109. AS/400 TCP/IP Connection Status screen

If you cannot find the SNMP entry, the SNMP service is not starting properly. To start the SNMP service manually, type STRTCPSVR *SNMP on the AS/400 command line. After submitting the command, check again whether the snmp service is active.

For details about the AS/400 SNMP service, refer to *Simple Network Management Protocol (SNMP) Support V4R1*, SC41-5412.

5.7 Process management

Tivoli IT Director enables you to manage individual processes on remote systems. The process management task enables you to start and (when used in conjunction with the Scheduler task) schedule the task. See Figure 110.

Note

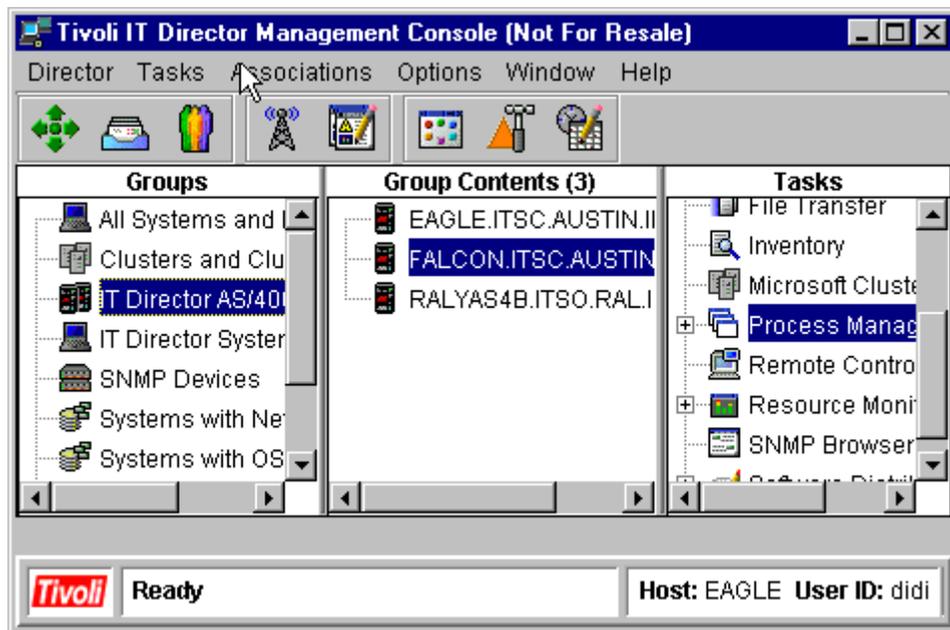Only the process task function is available for AS/400 IT Director Management Agents.

Figure 110. Process Management task

5.7.1 Executing commands on selected systems

You can use the process management task to execute a command on a target managed system. You can do this by first creating a customized command and dragging and dropping from the Process Management panel onto the target system(s).

5.7.2 Creating a non-interactive task

You can use the process management task to send individual commands to a selected system or group. You can send only one command at time. However, additional commands are queued on the target systems and executed in the same order as received. The command can be executed immediately or be scheduled.

The command for AS/400 must be quoted. The command is interpreted on the AS/400 by Qshell.

An example of an AS/400 command is:

```
SYSTEM "CALL MYLIB/MYPGM PARM('PARM1')"
```

Because the CLP syntax is not checked, you can use copy and paste functions from the AS/400 command line and paste (CTL + V) to the IT Director task command line panel.
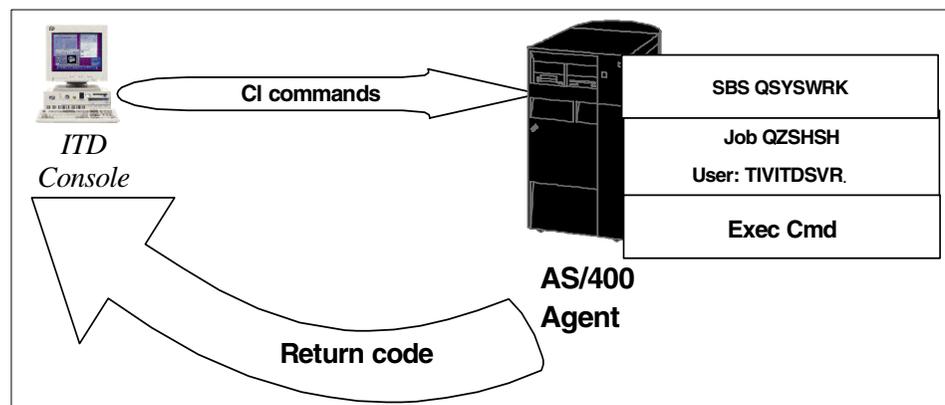
Figure 111. Process command

Figure 111 shows you how the task is processed by the AS/400.

Task jobs are submitted by the TIVITDSRV Tivoli IT Director Management Server user, and this user profile has the following special authorities:

- *JOBCTL
- *ALLOBJ

Please refer to the *OS/400 Security - Reference*, SC41-5302, for more information about special authorities. Refer to the following job log for more information about task management in AS/400.

> **Note**
>
> The TIVITDSVR user profile is not used for process management tasks. The user profile used is the default user profile configured for the agent on CHGITDAGTA. If you do not configure a default user profile with the CHGITDAGTA command, process management tasks cannot be executed "anonymously" (without a user ID and password).
>
> You must specify a user ID and password for the task in this configuration.

```
 Job Log                                EAGLE    03/07/00 15:43:08
  QZSHSH          User . . . . . :   TIVITDSVR   Number . . . . . . . . . .
 TIVITDSVR        Library . . . . . :  TIVITDSVR
 SEV   DATE       TIME      FROM PGM     LIBRARY    INST     TO PGM
 00    03/07/00  15:40:56  QWTPIIPP      QSYS      05E5     *EXT
   Thread  . . . . :   00000480
   Message . . . . :   Job 006125/TIVITDSVR/QZSHSH started on 03/07/00 at
     15:40:55 in subsystem QSYSWRK in QSYS. Job entered system on 03/07/00 at
     15:40:55.
 00    03/07/00  15:42:00  QMHQCRTQ      QSYS      00C7     QC2SYS
   To module . . . . . . . . . :   QC2SYS
   To procedure . . . . . . . :   system
   Statement . . . . . . . . . :   6
   Thread  . . . . :   00000481
   Message . . . . :   Object EVT1006125 type *DTAQ created in library TIVITDS
 10    03/07/00  15:42:51  QLEAWI        QSYS      *STMT    QZSHSH
From module . . . . . . . . :   QLEPM
  From procedure  . . . . . . :   Q LE leBdyEpilog
  Statement . . . . . . . . . :   788
  To module . . . . . . . . . :   QZSHSH
  To procedure  . . . . . . . :   _CXX_PEP
  Statement . . . . . . . . . :   37
  Thread  . . . . :   00000480
  Message . . . . :   This job is about to end.
  Cause . . . . . :   The job is being terminated because the job is capable
    having multiple threads and the application has issued an exit(), abort()
    their equivalent APIs, or an exception has occurred and is not being
    handled.
 00    03/07/00  15:43:02  QWTMCEOJ      QSYS      00AA     *EXT
   Thread  . . . . :   00000480
   Message . . . . :   Job 006125/TIVITDSVR/QZSHSH ended on 03/07/00 at 15:43:
     9 seconds used; end code 0 .
                                                                   More...
```

Jobs are running in the QSYSWRK subsystem, and the type of job is BCI Batch Immediate.

Figure 112. Send a command

If you select the log option, the Timeout field is enabled. You can specify the timeout value in seconds.
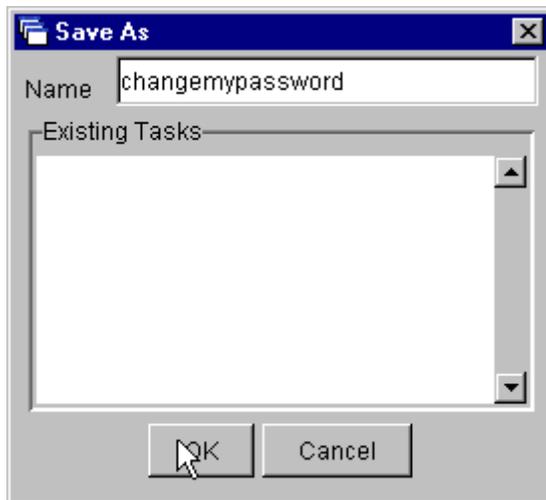

Figure 113. Save the command

Give a descriptive name for the task. Click **File** and then **View log** to get a log display. See Figure 114 on page 126.
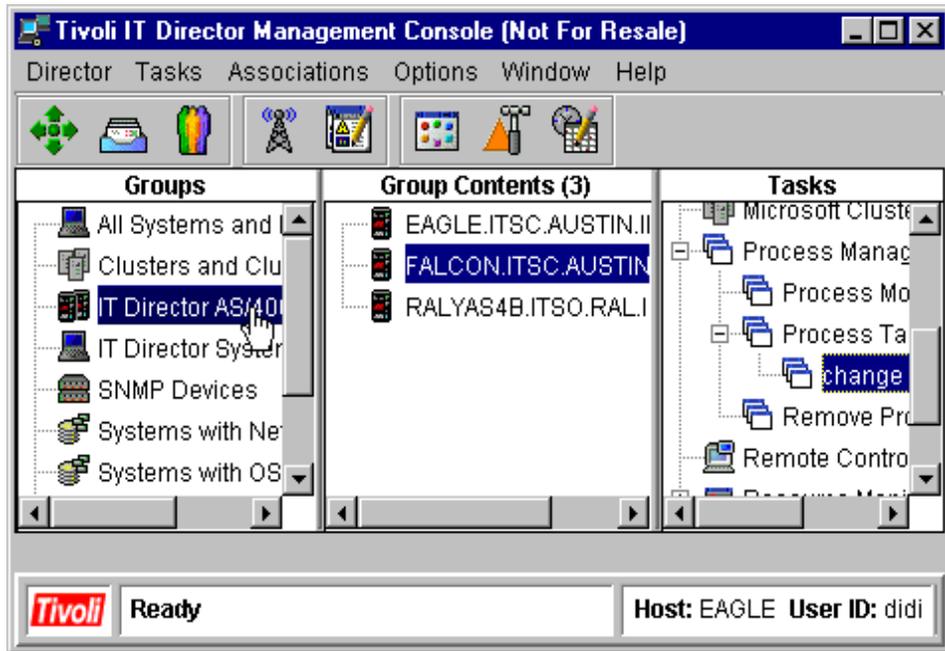
Figure 114. Executing commands on selected systems

Use normal drag-and-drop techniques to process your command on a group of managed systems.
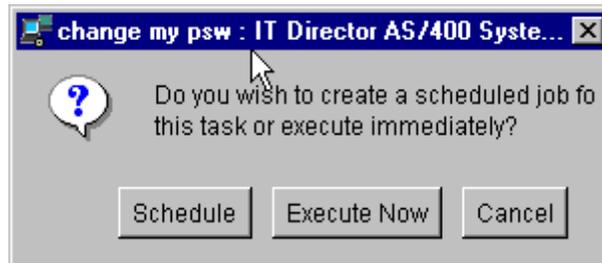

Figure 115. Execute Now button

5.7.3 The execution history window

This window provides execution statistics on the task you have just run. See Figure 116 on page 127.
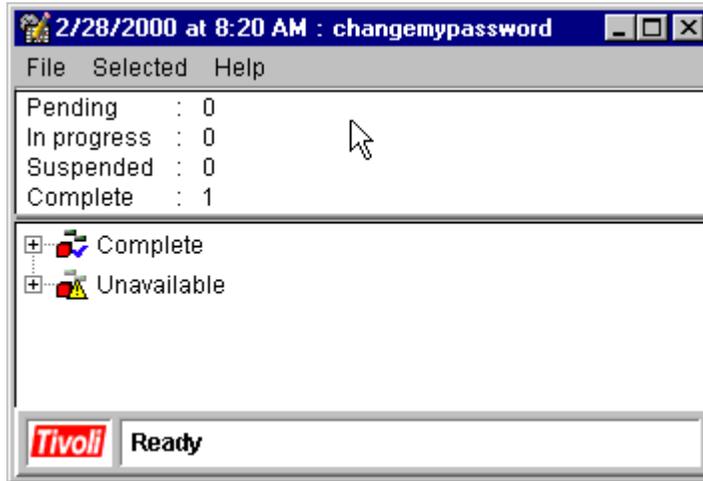
Figure 116. Execution history window

Select **View** to see function availability:

Refresh   Immediately refreshes the list of entries each time a new
                     entry is generated.

Dynamic Update   Specifies that the list must automatically refresh.

The log is available in three detail levels:

Low   Displays basic information.

Medium   Displays the same information as the Low level detail and more
               entries depending on the task.

High   Displays all entries available for the task.

To update the log, click the **Refresh** button.

5.7.4 Scheduling a task

You can also schedule a task or define it to repeat automatically at a given
intervals. A scheduled task is called a *job*.

Most AS/400s have their own scheduler, but you can use or grant the
authority to use this scheduler, for example, to the account group leader to
select a target systems and schedule user queries, or to modify an entry in
your scheduler. See Figure 117 on page 128.
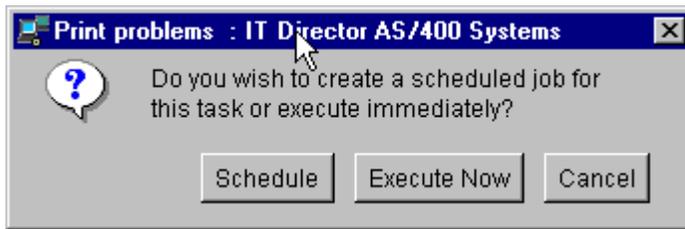
Figure 117. Schedule a task

In the Scheduled Job field, enter a title for the scheduled job. Enter the date or click the icon to select the date. If you want to repeat the execution or set special execution, select **Advanced**. You can select the type of event to be generated for this scheduled job during the process or when the job is completed. See Figure 118.
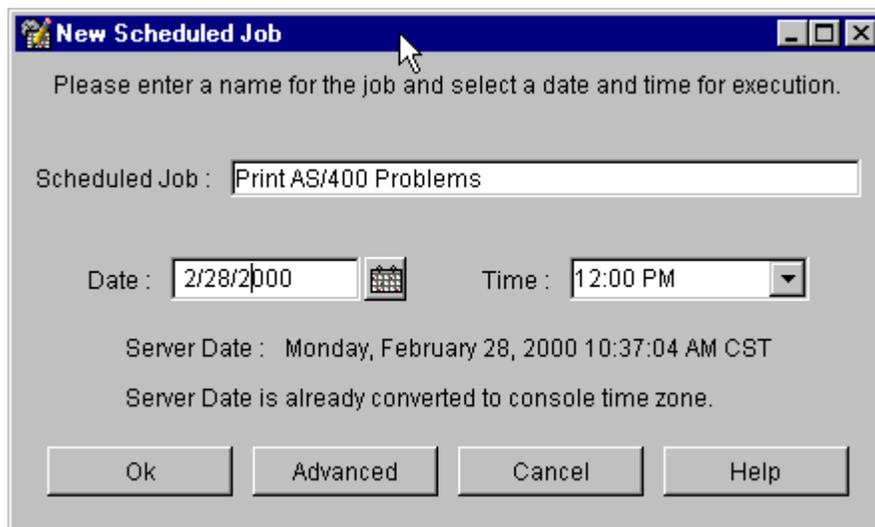

Figure 118. New Scheduled Job window

The Advanced option allows you to define how to proceed with the scheduled job.

Under Options, you can define the following:

Delay Execution on unavailable systems: If this option is not selected, only target systems that are online at the time of execution will have the task performed on them. Any target system that is offline is assigned to **the**

Unavailable status. When all systems have been marked with a Complete or Unavailable status, the overall status is changed from In progress to Complete. You can also define how long you want keep the job information in the log; the default value is the last five executions.

For each scheduled job, you can generate an event. Refer to the IT Director Online Help for more details.

5.8 Task scheduler

In Version 2.11 of the Tivoli IT Director Management Server, the scheduler task supports the scheduling of all tasks on the agents that are supported on their respective operating systems.

You can get general information about how to use the task scheduler on all operating systems in Chapter 16 of the *Tivoli IT Director User's Guide*. In this section, we provide an example of how to schedule a command to run on an AS/400 machine.

The following are task scheduler functions:

- Gives you the ability to schedule a task for one or more executions.
- Allows multiple machines to be targeted with a single job.
- Can create events on failure and/or success of job, enabling an automated process to move from one task to another only if the previous one was successful.
- Allows for delayed execution if the system is not available (for example, portable computers can often be out of the office environment).
- Allows you to view the status of upcoming or active jobs.
- Lets you view the log on jobs that are in progress or complete.

Figure 119 on page 130 shows an overview of the task scheduling process. You give the task (for example, run inventory on all Windows NT machines) and time of the execution from the IT Director Management Console to the IT Director Management Server. The server then stores the data in the scheduler task. At the given time, scheduler runs the task on the target machine(s).
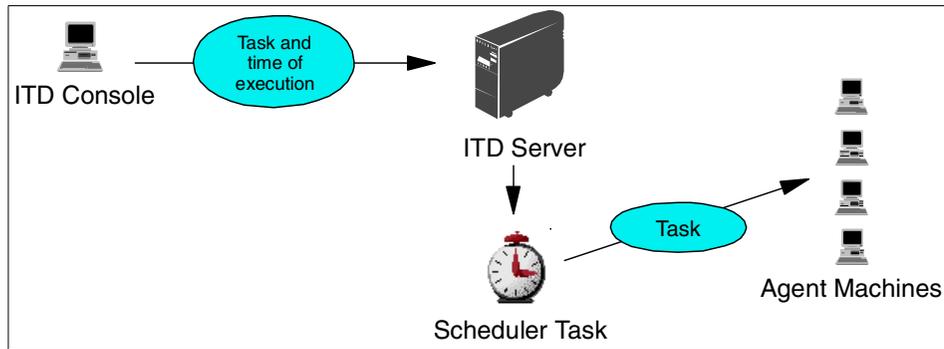
Figure 119. Overview of the scheduler task

In the next section, we introduce a practical example of task scheduler use.

5.8.1 Scheduling a command

First, you must create the task by using the Process Task panel under
Process Management. Here, right-click on **Process Management** and select
Open. In Figure 120, we created a task that will print the contents of the
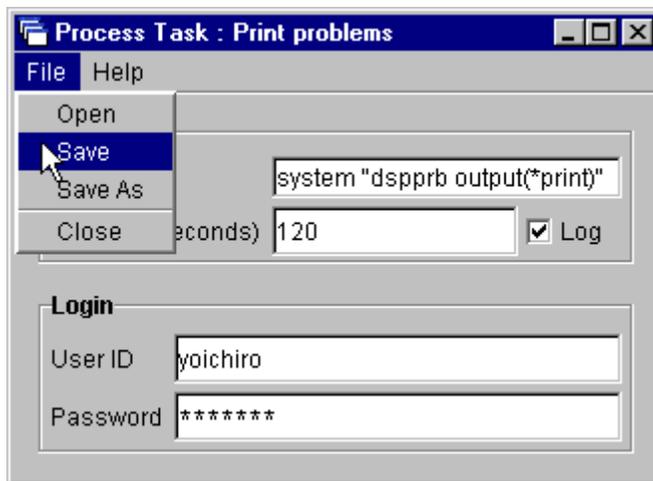AS/400 problem logs into its job log.

Figure 120. Task settings

In the Login section, you must provide a user ID and password that have the
right to execute the command on the target system. If you wish to run the
same command on many systems, and you do not have one centralized user
ID and password for all machines, you will have to create several tasks, each

with its own set of user IDs and passwords. Also, be sure to check the **Log** checkbox.

After you have finished with your settings, select **File** and **Save**.

Now you are ready to schedule the task. As shown in Figure 121, click the **Scheduler** icon in the IT Director Management Console.
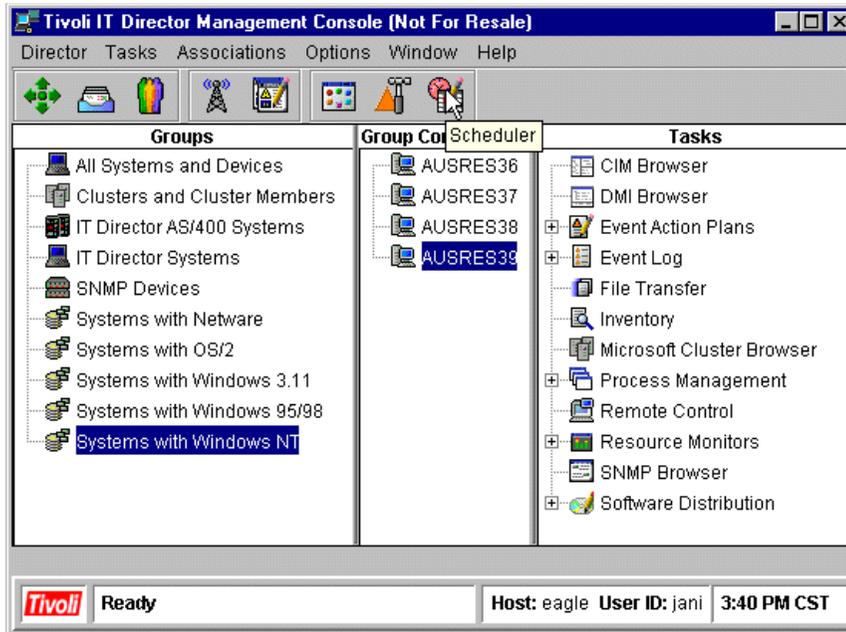

Figure 121. Starting the scheduler task

In scheduler, you can see all past and future tasks. You need to create a new scheduled job. To do this, you must select **File** and then **New Job**. See Figure 122 on page 132.
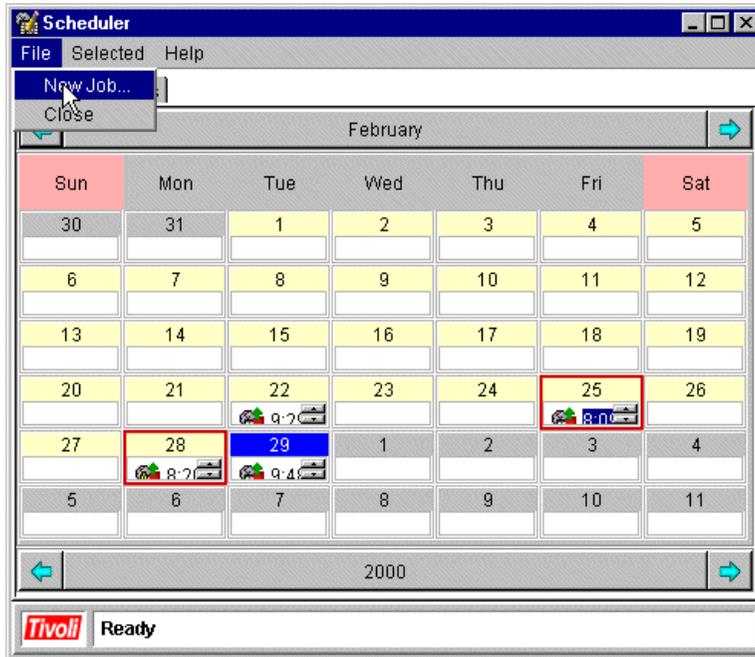
Figure 122. Creating a scheduled job

In the New Scheduled Job screen, there are four tabs:

- Date/Time

- Task

- Targets

- Options

First, you need to set the date and time for the job as shown in Figure 123 on page 133.
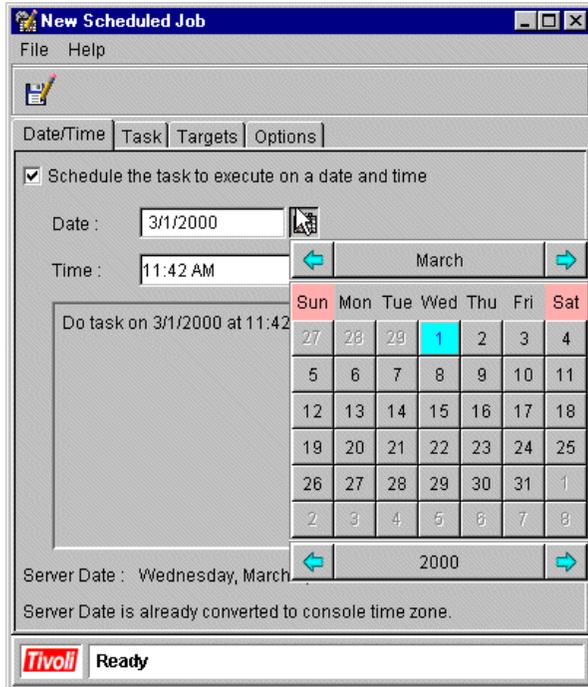
Figure 123. Setting the date and time for the job execution

You can use the calendar as an aid in picking the date.

Next, you need to select the task you wish to perform. Click the **Task** tab See Figure 124 on page 134.
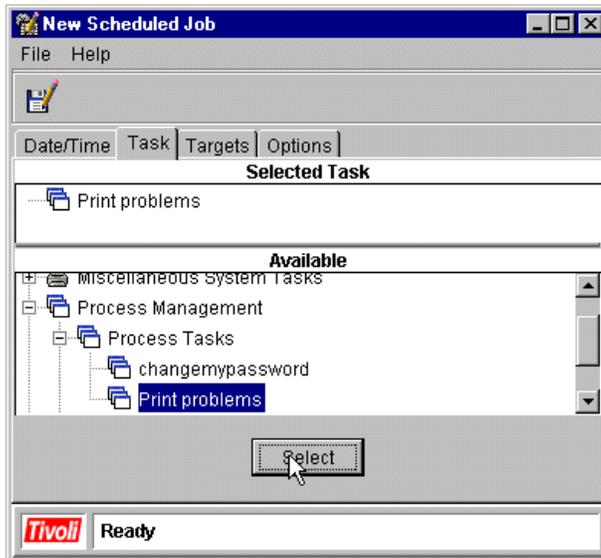
Figure 124. Selecting the task

You will find the task you created earlier by opening **Process Management** and **Process Tasks**. Either drag and drop the task in the Selected Task box or click it once and then click the **Select** button.

Now, all that remains to be done is selecting the target(s). To start, click the **Targets** tab. See Figure 125 on page 135.
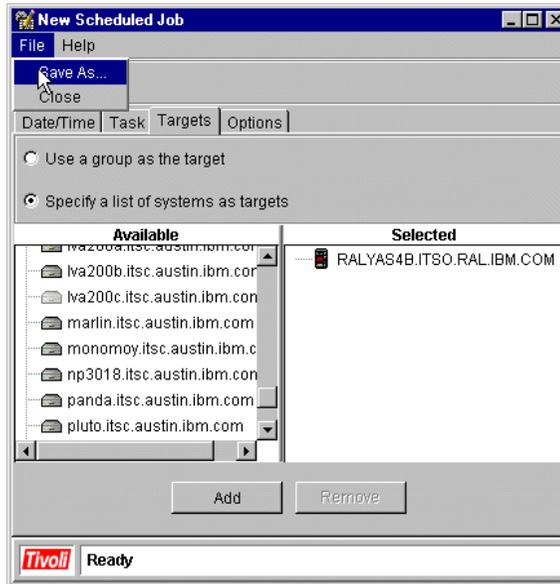
Figure 125. Selecting target system(s) and saving the job

You can specify a group (such as IT Director AS/400 Systems) as a target or you can specify a list of systems as targets. Select whichever system(s) you wish to target and click the **Add** button. Next, select **File -> Save As**.

In the dialog box shown in Figure 126, give the job a name. Later, you might have to pick this job out of hundreds of selections, so it helps if the name is descriptive.
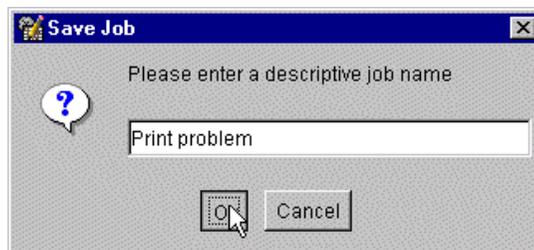

Figure 126. Naming the job

The job is now scheduled for execution on the time and date of your selection.

Later, you can view the results in the job log. You can find this in the Scheduler panel under the Jobs tab. You will see a list of all jobs, those that

have already been executed, those that are running and those that will be run in the future.

Select the job that you created earlier, in this case, Print problem. Right-click on the job and select **View Log** as shown in Figure 127.
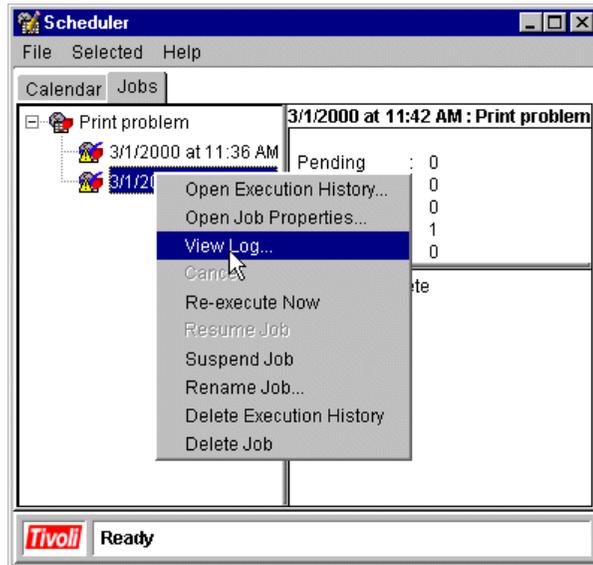

Figure 127. Viewing the results from the job log

You will then get a screen that shows you the job's output. Some output might be missing the information in the low detail mode, so you should select **View -> Detail -> High** as shown in Figure 128 on page 137.
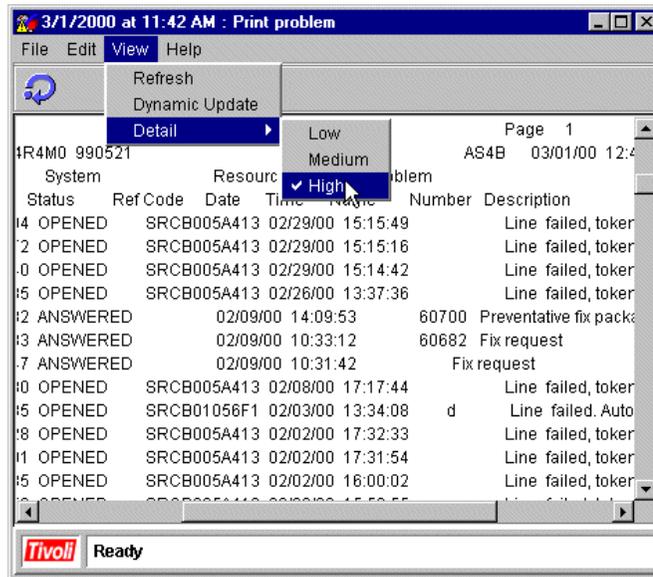
Figure 128. Job log contents

This is only one way to use the scheduler. Please refer to Chapter 16 of the *Tivoli IT Director User's Guide* for more information. For more examples, refer to Chapter 5 of *Tivoli IT Director Automation*, SG24-5295.

5.9 Internet services

Internet services enable you to publish functions of the Tivoli IT Director Management Server on a HTTP server. The following functions are available in Internet services:

- Resource monitoring
- Event management
- Software distribution

You can use these functions from a Web browser, such as Netscape or Internet Explorer. Internet settings for each function are explained in their respective sections. See Figure 129 on page 138 for an overview of Internet services.
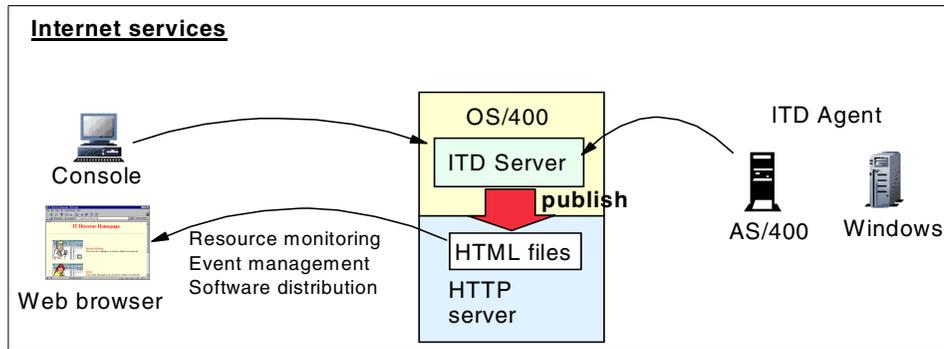
Figure 129. Internet services overview

Note

If you use the software distribution task from a Web browser, you will need to have the IT Director Management Agent installed on your PC.

5.9.1 AS/400 HTTP server setup

Before you configure Internet services, you need to configure the OS/400 HTTP server.

This section provides an example of OS/400 HTTP server setup. For more detailed information about the OS/400 HTTP server, refer to *HTTP Server Webmaster's Guide V4R4,* GC41-5434. Complete the following steps:

1. Type the `WRKHTTPCFG` command on the AS/400 command line and press the **F4** key.

2. On the parameter screen, keep the Configuration name parameter at its default value (CONFIG), then press **Enter**. See Figure 130 on page 139.
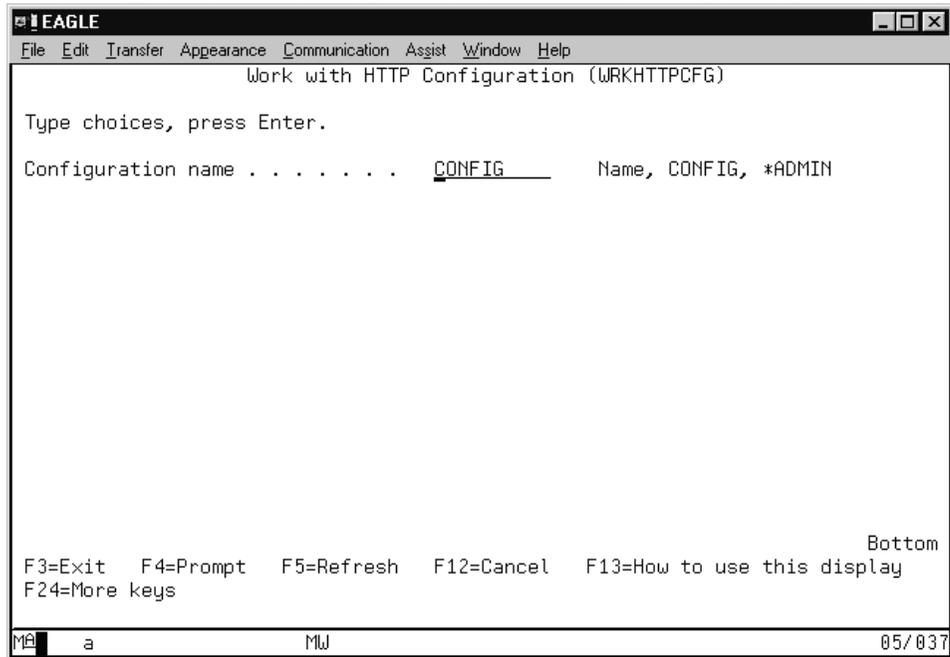
```
EAGLE                                                                  _ □ ✕
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                  Work with HTTP Configuration (WRKHTTPCFG)

Type choices, press Enter.

Configuration name . . . . . . .    CONFIG        Name, CONFIG, *ADMIN




















                                                                  Bottom
F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
F24=More keys

MA     a                  MW                                        05/037
```

Figure 130. The WRKHTTPCFG command

Note

CONFIG is a default configuration file for the OS/400 HTTP server. You can also create a new HTTP server configuration. In this example, CONFIG is used for the OS/400 HTTP server.

---

3. Look for the `Pass` entry by pressing the **Page Down** key. See Figure 131 on page 140.

```
EAGLE                                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                         Work with HTTP Configuration
                                                      System:    EAGLE
     Configuration name . . . . . . . :     CONFIG

 Type options, press Enter.
   1=Add    2=Change    3=Copy    4=Remove    5=Display    13=Insert

       Sequence
 Opt    Number     Entry
 ─────────────────────────────────────────────────────────────────────
   __    01010     #  V4R3.  The first Pass directive serves a sample file
   __    01020     #  called Welcome.html for a request of the form
   __    01030     #  http://hostname/. The second Pass directive allows
   __    01040     #  image files referenced in the Welcome.html file to
   __    01050     #  be served.
   __    01060     #  To serve your own server home page change the first    >
   __    01070     #  directive to point to your welcome page location.
   __    01080     #
   __    01090        Pass /  /QIBM/ProdData/HTTP/Public/HTTPSVR/HTML/Welc   >
   __    01100        Pass /sample/*  /QIBM/ProdData/HTTP/Public/HTTPSVR/H   >
                                                                    More...
 F3=Exit    F5=Refresh    F6=Print List    F12=Cancel    F17=Top    F18=Bottom
 F19=Edit Sequence

 MA      a                    MW                                      10/002
```

Figure 131. HTTP server config file

4. In the `Opt` column on the line that is next to the Pass entry line, type `13` and
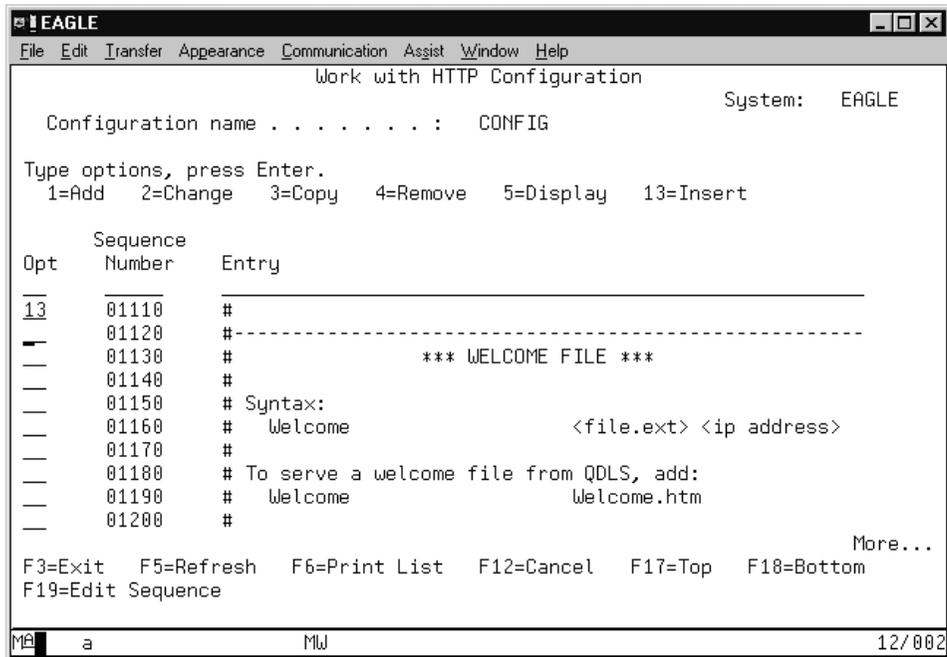   press **Enter**. See Figure 132 on page 141.

```
EAGLE                                                          _ □ ✕
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                    Work with HTTP Configuration
                                              System:    EAGLE
    Configuration name . . . . . . . :    CONFIG

  Type options, press Enter.
    1=Add    2=Change    3=Copy    4=Remove    5=Display    13=Insert

        Sequence
  Opt    Number    Entry

  13     01110     #
         01120     #------------------------------------------------------
  __     01130     #                   *** WELCOME FILE ***
  __     01140     #
  __     01150     # Syntax:
  __     01160     #    Welcome                   <file.ext> <ip address>
  __     01170     #
  __     01180     # To serve a welcome file from QDLS, add:
  __     01190     #    Welcome                   Welcome.htm
  __     01200     #
                                                              More...
  F3=Exit    F5=Refresh    F6=Print List    F12=Cancel    F17=Top    F18=Bottom
  F19=Edit Sequence

  MA   a                    MW                                12/002
```

Figure 132. Adding an entry to the config file

5. In the Insert HTTP Configuration Entry screen enter the directory information. The format is as follows:

> pass */virtual-directory/* /actual-directory/**

In this example, the directory itdweb is both a virtual and an actual directory.

Then, press **Enter**. See Figure 133 on page 142.

Note

You need to create a directory (actual directory) for the Internet service HTML files in advance. You also need to give authority to access the directory (use the QTMHTTP user profile). For more detailed information, refer to the *HTTP Server Webmaster's Guide V4R4,* GC41-5434.

```
EAGLE                                                    _ □ X
 File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                  Insert HTTP Configuration Entry
                                              System:   EAGLE
 Sequence Number  . . . . . . . . . . . :   01111
 Entry  . . . . . . . . . . . . . . . .     Pass /itdweb/* /itdweb/*
 _____
 _____
 _____
 _____
 _____
 _____
 _____
 _____
 _____
 _____



                                                        Bottom
 Press Enter to complete.

 F3=Exit    F11=Another Entry    F12=Cancel

 MA▌    c                                               04/045
```
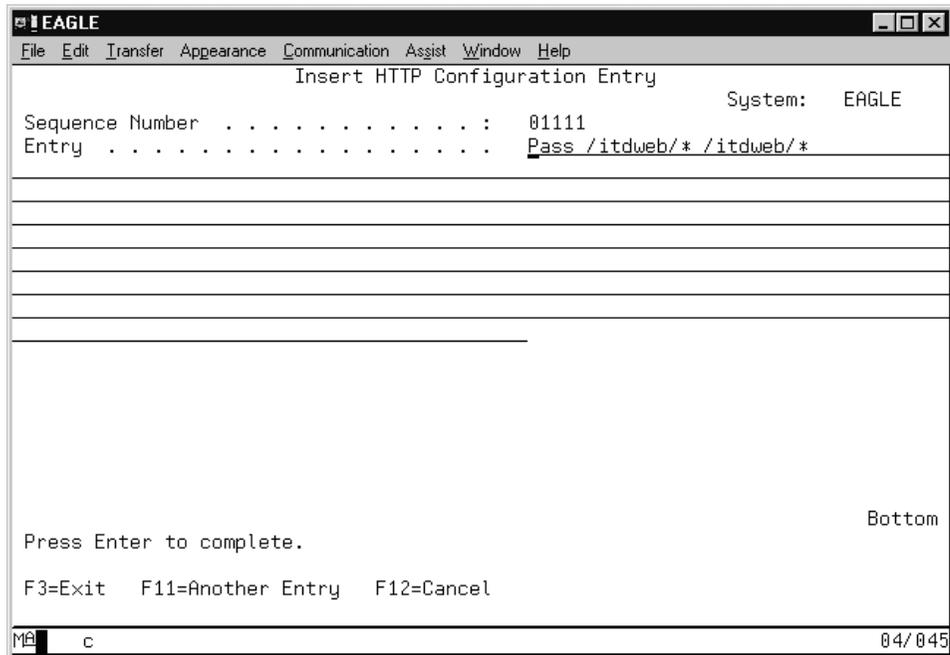
Figure 133. Pass entry format

6. To check that the new entry was added properly, see if the line with the
   Pass entry has the correct information (see the example in Figure 134 on
   page 143). Then, press the **F3** key to exit this screen.
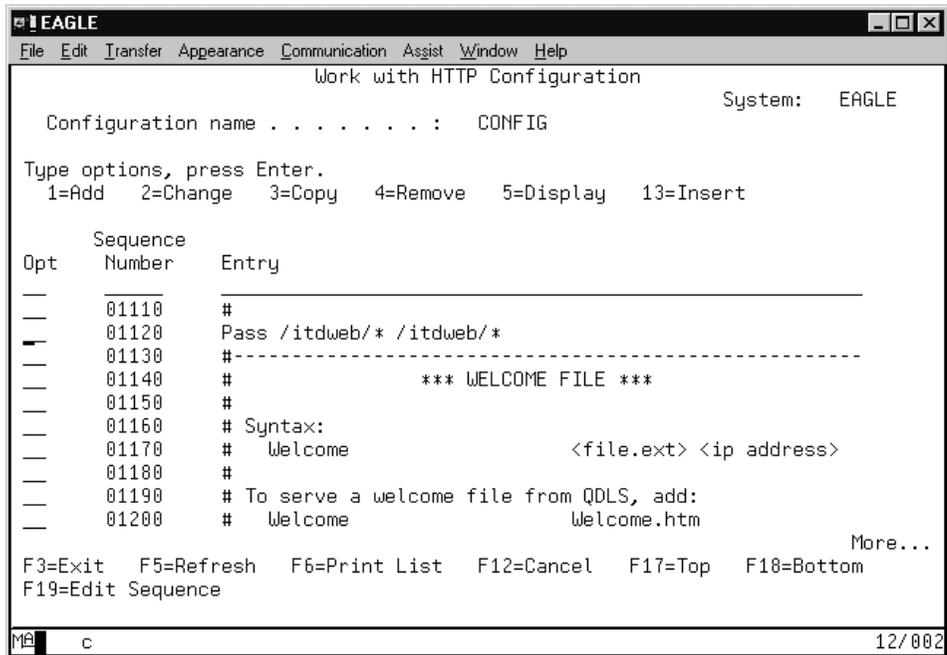
Figure 134. New entry added

7. If the OS/400 HTTP server has already started, end it. Type `ENDTCPSVR`
   `SERVER(*HTTP)` on AS/400 command line and press **Enter**.

8. Start the OS/400 HTTP server. Type `STRTCPSVR SERVER(*HTTP)` on AS/400
   command line.

5.9.2 Internet services setup

On Tivoli IT Director Management Console, click the **Web Site Builder** icon.

Figure 135. Web Site Builder icon

In the Web Site Builder window, enter the information into the Web Site Directory field. The HTML files of the Internet service will created into this directory.

In the *Page Option* section, you can select functions that you want to publish in the HTTP server. In this example, everything is selected as shown in Figure 136.
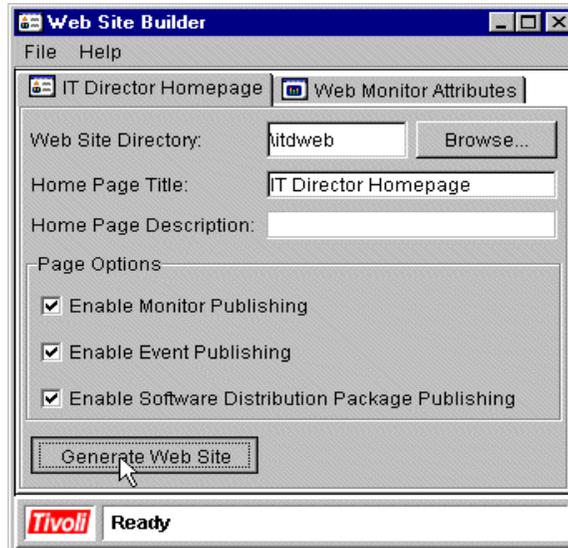
Figure 136. Web Site Builder window

The Browse button enables you to browse the AS/400 directory. See Figure 137 on page 145.
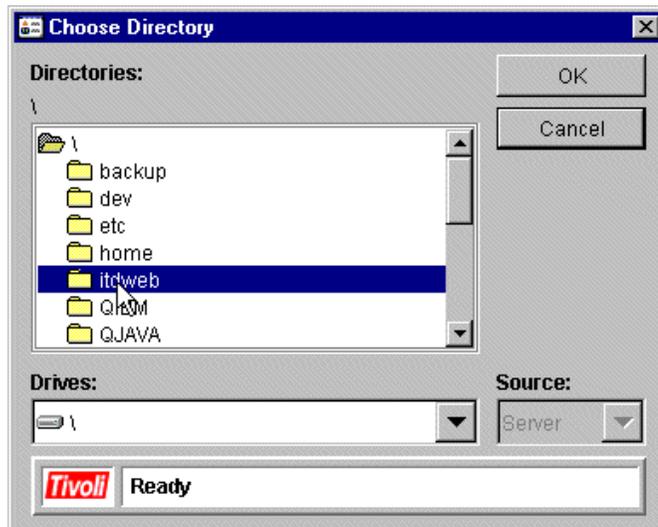
Figure 137. Choose Directory window

After entering all information, click the **Generate Web Site** button. The HTML files will be automatically created. After the process is finished, you will receive a message as shown in Figure 138.

Figure 138. Process complete message

After completion of the Web Site Builder process, you can access it from a Web browser. Type the following URL into your browser's location field and press **Enter**:

```
http://server_name/virtual_directory/default.htm
```

Default.htm is a welcome page for the Internet service. In this example, the Web site is:

```
http://eagle/itdweb/default.htm
```

See Figure 139 on page 146.
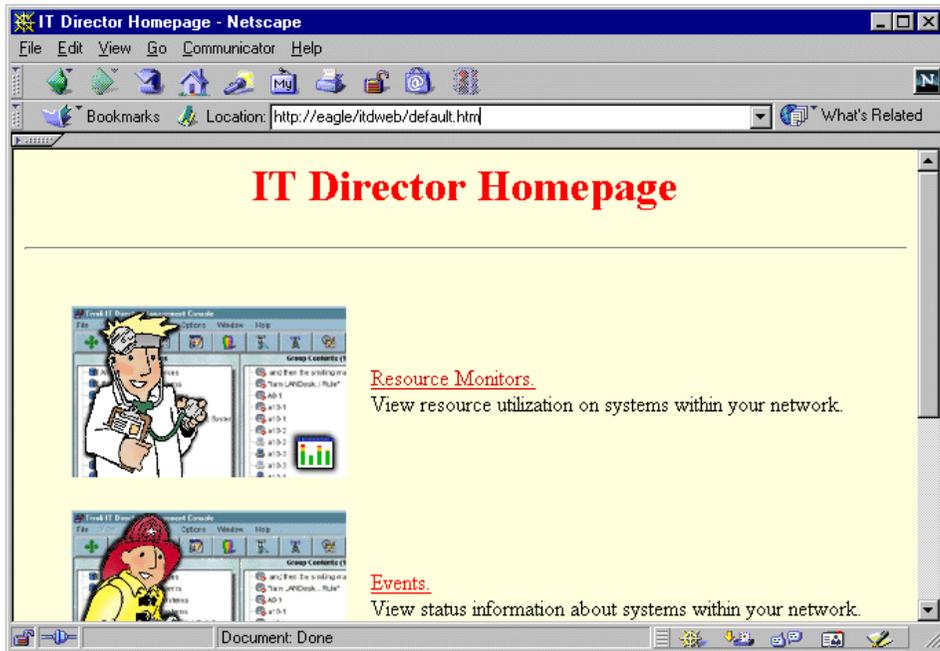
Figure 139. IT Director Homepage

For details about the Internet service configuration, refer to Chapter 18 of the *Tivoli IT Director User's Guide.*

Chapter 6. AS/400 management scenarios

This chapter provides some AS/400 management scenarios using IT Director for AS/400. Each example uses multiple management functions of IT Director and provides seamless management scenario and the best practices.

6.1 Overview of our AS/400 management environment

To perform some AS/400 management scenarios, we configured a test environment that consisted of AS/400 and Windows NT machines. Table 6 shows the AS/400s in our test environment:

Table 6. AS/400 test environment

Machine Name	Model	OS/400 Version	Server/Agent
EAGLE	170	V4R4	Server
FALCON	150	V4R4	Agent
RALYAS4B	170	V4R4	Agent

Table 7 shows the Windows NT systems in our test environment.

Table 7. Windows NT test environment

Machine Name	Model	Windows NT Version	Agents
AUSRES36	Pentium II 450 MHz	4.0	Agent
AUSRES37	Pentium II 450 MHz	4.0	Agent
AUSRES38	Pentium II 350 MHz	4.0	Agent
AUSRES39	Pentium II 350 MHz	4.0	Agent

In total, we had three AS/400s and three Windows NT machines, in which two AS/400 were defined as managed systems. To manage this environment, we used the three Windows NT machines as IT Director Management Consoles.
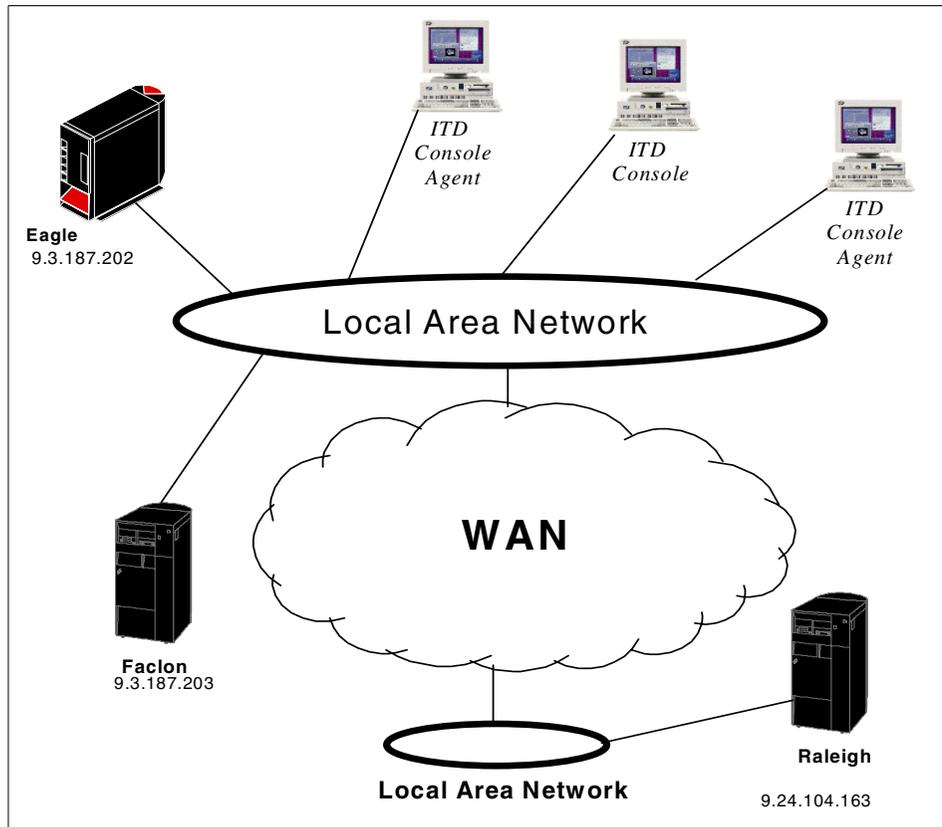
Figure 140. ITSCO network test for IT Director

All functions of IT Director have been tested and run in this environment.

In all scenarios, the ITDADM user ID is used as an *SECOFR class ID on the AS/400 machines and as Administrator on the Windows NT machines. The IT Director Management Server is also configured to use this user ID. Please refer to Chapter 4, "IT Director for AS/400: Installation and configuration" on page 27 for instructions on how to configure the Tivoli IT Director Management Server to use this user ID.

6.2 Automating the installation and configuration of new AS/400s

In this scenario, we plan to register and customize a new AS/400 in our environment. This case can happen very often, and you do not want to waste time on customizing an AS/400 and making it ready to work. In this scenario, we intend to use IT Director for the following tasks:

- Installing IT Director Agent

- Setting up security values in accordance with IT Director needs

- System statistics, user statistics, verifying sub-systems activity, job statistics

- Retrieving inventory from this new machine

- Monitoring resources

- Processing tasks

6.2.1 Installation planning details

First, you should configure and customize the AS/400 network settings in order to enable the TCP/IP network to reach the new AS/400. For more information about TCP/IP configuration, refer to *TCP/IP Configuration and Reference V4R4,* SC41-5420

Verify and check that the AS/400 has the required level of OS/400 and PTF levels. For more detailed information, please refer to Chapter 3, "Tivoli IT Director for AS/400: Planning" on page 11.

Save the product 1ITDAGT from your provider site in a save file, then send it to the new, managed AS/400. After this operation, the new AS/400 can receive the file.

To create a program that will perform the customizing operations for you, refer to the next section. This program uses two parameters:

- Name of the save file

- Name of the user profile used as a default user profile

6.2.2 Details of the instructions used in the program

Execute the program with a user ID that has class equal to *SECOFR. If it is not, the program will escape.

The product, 1ITDAGT, is restored from the save file.

The user ID you provide is added as the default user to allow the remote IT Director Management Server to run AS/400 commands without specifying a user ID and password.

Refer to Appendix A, "AS/400 Agent installation sample program" on page 219 for a listing of the CL Program.

Create a save file to save the 1ITDAG licensed product (see Figure 141 on page 150), then save the product by using OS/400 Save Licensed Program (`SAVLICPGM`) command. Please refer to Figure 142 on page 151 for information on the `SAVLICPGM` command.

```
eagle - [24 x 80]                                              _ □ ✕

File  Edit  Transfer  Appearance  Communication  Assist  Window  Help

 ◀  [PrtScrn] [Copy] [Paste] [Send] [Recv] [Display] [Color]  [Map] [Record]  ▶

                       Create Save File (CRTSAVF)
 Type choices, press Enter.

 Save file  . . . . . . . . . . .   ITDAGSAVF    Name
   Library  . . . . . . . . . . .    *CURLIB     Name, *CURLIB
 Text 'description' . . . . . . .   IT Director Agent SavFile
 _____



                                                              Bottom
 F3=Exit    F4=Prompt    F5=Refresh    F10=Additional parameters    F12=Cancel
 F13=How to use this display          F24=More keys

 MA  a                   MW
```

Figure 141. Create Save File dialog

No other parameters are required to create a save file.

Before saving the product, you must stop both the IT Director Management Server and Agent program. If you do not stop the programs, some objects will be left used and locked and the save operation will fail.
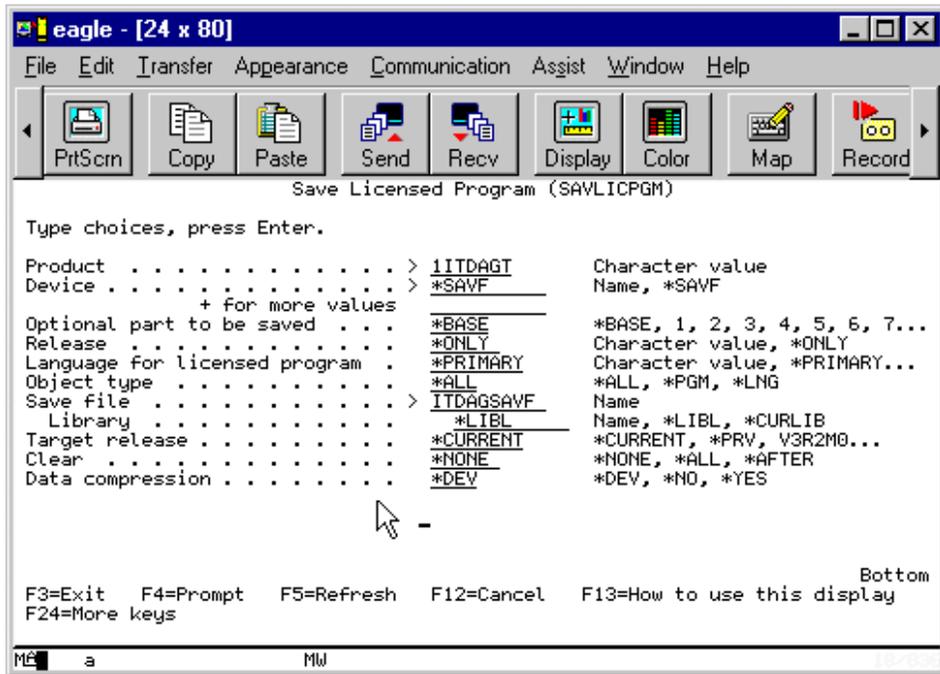
Figure 142. Save Licensed Program dialog

The name of the save file will be used by the installation program as a parameter. Create another save file and send your installation program to the target system.

Establish a session with the target system and restore the program.

If you are using FTP to send the save file, you have to create a save file on the target system. Perform an FTP on the AS/400 functions in the same manner as on other platforms.

```
eagle - [24 x 80]                                       _ □ X

File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        File Transfer Protocol

Previous FTP subcommands and messages:
  Connecting to host falcon.itsc.austin.ibm.com at address 9.3.187.203 using
    port 21.
  220-QTCP at FALCON.
  220 Connection will close if idle more than 5 minutes.
> didier
  331 Enter password.
  230 DIDIER logged on.
   OS/400 is the remote operating system. The TCP/IP version is "V4R4M0".
  250  Now using naming format "0".
  257 "QGPL" is current library.
> bin
  200 Representation type is binary IMAGE.

Enter an FTP subcommand.
===> put itdagsavf_


F3=Exit     F6=Print       F9=Retrieve
F17=Top     F18=Bottom     F21=CL command line

MA    b                 MW                                    18/020
```

Figure 143. Using FTP

Start an FTP session with the AS/400 and send the save file of the product
and the save file that contains the program, then restore the program:

```
RSTOBJ OBJ(MYPROGRAM) SAVLIB(MYLIB) DEV(*SAVF) SAVF(MYSAVF)
```

This program expects two parameters:

- Name of the user ID used by IT Director for remote commands
  - For this scenario, we used ITDADM as the user ID
- Name of the save file
  - The name of the save file is ITDAGSAVF

In the command line, type:

```
CALL MYLIB/MYPGM PARM('&PARM1 &PARM2')
```

See Figure 144 on page 153.
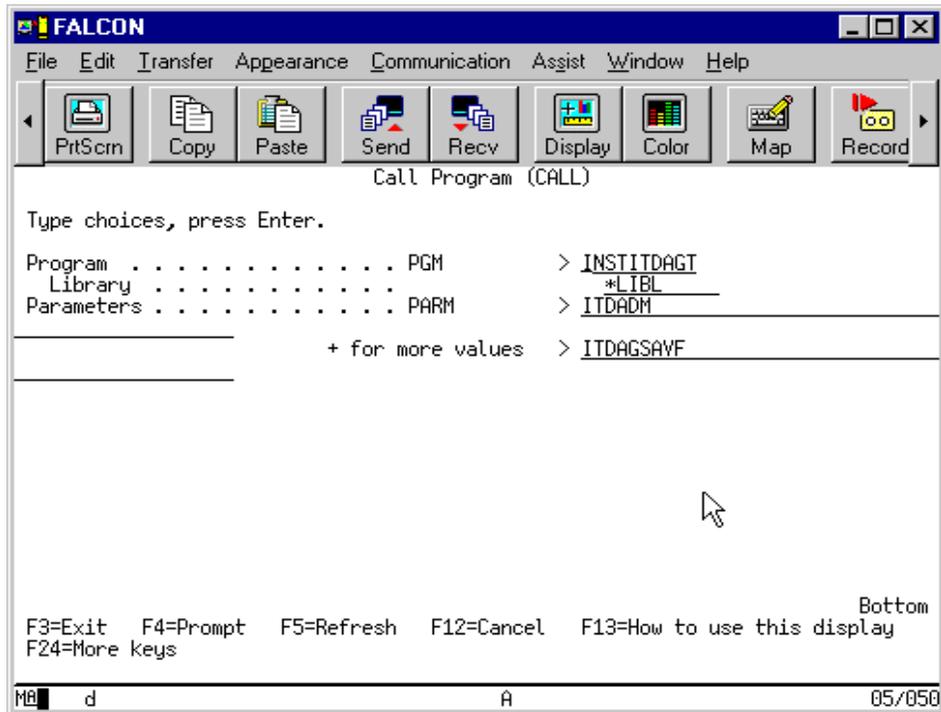
Figure 144. Call the installation program

The program was restored in QGPL library. User profile ITDADM has been created and set to be the default user ID for IT Director Agent attributes.

```
FALCON                                                    _ □ ✕

File  Edit  Transfer  Appearance  Communication  Assist  Window  Help

  [PrtScrn]  [Copy]  [Paste]  [Send]  [Recv]  [Display]  [Color]  [Map]  [Record]

                  Change ITD Agent Attributes (CHGITDAGTA)

Type choices, press Enter.

Autostart  . . . . . . . . . . .    *YES          *SAME, *YES, *NO
Default User Profile . . . . . .    ITDADM        Character value, *SAME, *NONE










                                                                 Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys

MA   d                              A                           05/037
```
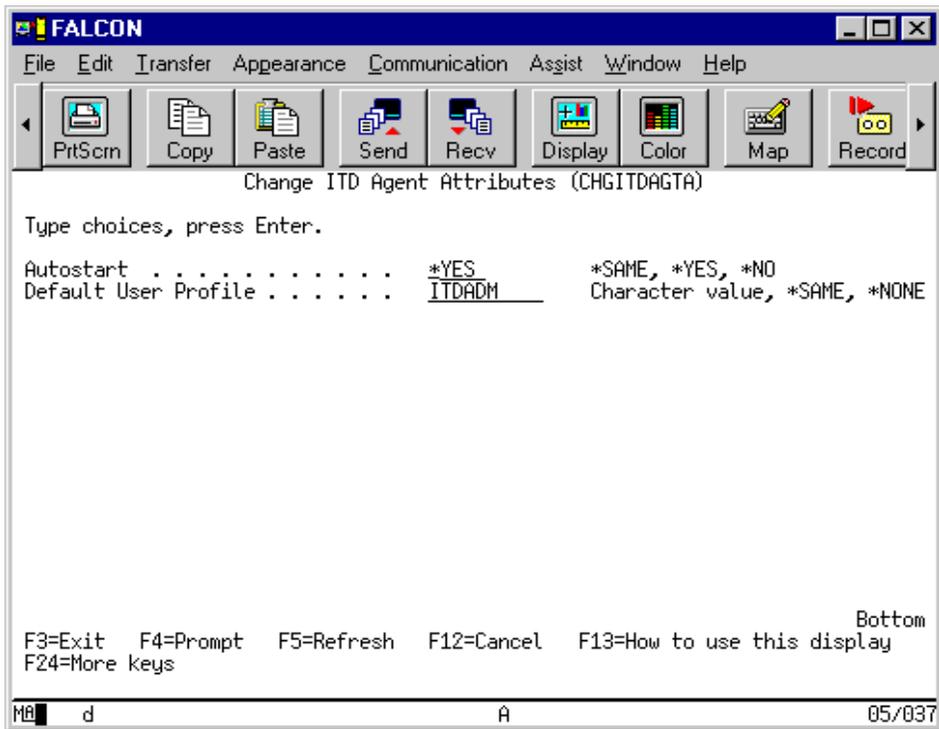
Figure 145. Attributes of IT Director Agent on target system

If the parameter Autostart has been set to *YES, the IT Director Management Agent will start automatically when the AS/400 is IPL'd. The IT Director Management Agent has to be started from the command line. To do this, type the following command:

    STRITDAGT

The AS/400 system will then be recognized by the server. In this scenario, all commands used are simple. You do not need expertise to connect and manage this new AS/400 in your network.
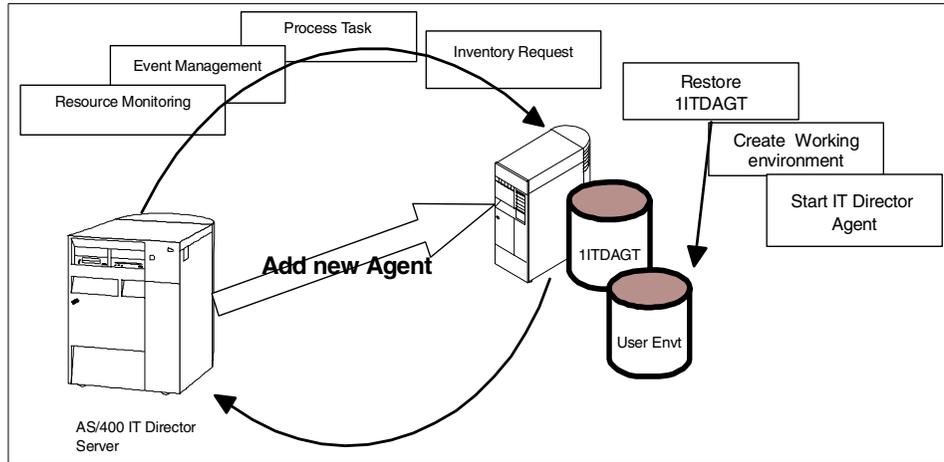
Figure 146. Overview of the scenario

You can extend this scenario and add more instructions. For an example program that manages your events, refer to Chapter 5, "Using Tivoli IT Director for AS/400" on page 63 for more detailed information about event management.

6.2.3 Managing your own environment

Now your AS/400 is connected to your network, and you are able to process tasks on it.

In this scenario we want to check that a subsystem is active and monitor the interactive sessions and batch jobs to see if they work. A process task has been created, and this task gathered the following information about available resources (to find out more about Resource Management, refer to 5.2, "Resource monitoring" on page 76).

- Number of active jobs in the subsystem Qinter for interactive jobs
- Number of users signed on
- Subsystem status
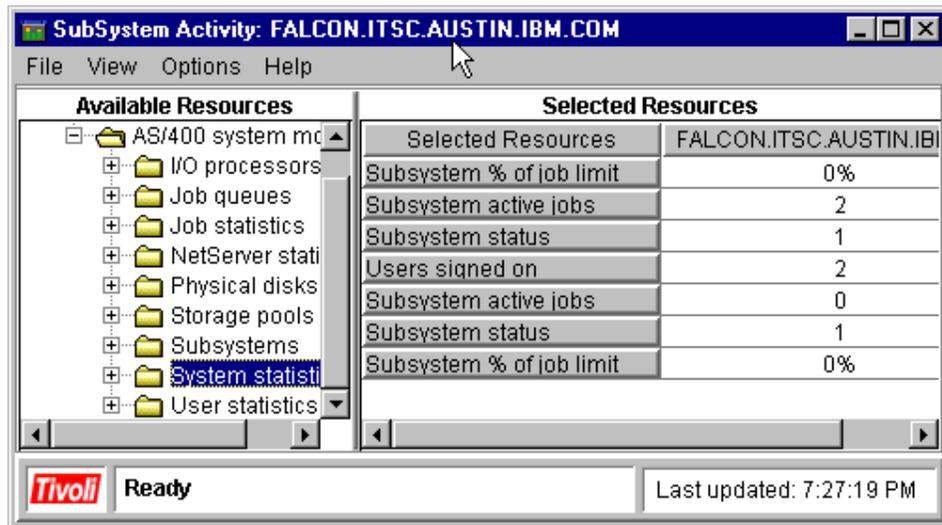
Figure 147. Process task: SubSystem Activity window

With this task, you can easily manage the Subsystems resources of this new AS/400.

6.2.4 Create a Control Language Program

In this scenario, you need to know how to create and update a CL program.

If you want to create a library to work in, use the CRTLIB command to create a library as follows:

```
CRTLIB LIB(MYLIB) TEXT(' Description text ')
```

Next, you have to create a source file. Use the CRTSRPF command to create a source file, CRTSRCPF FILE(MYLIB/QCLSRC), the name of the file can be whatever you want. In this example, it is named QCLSRC.

To work with this file, use the WRKMBRPDM MYLIBL/QCLSRC command to create a member in the specified source file or to perform an operation with a member that already exists in the source. Press the **F6** key to create a new member.
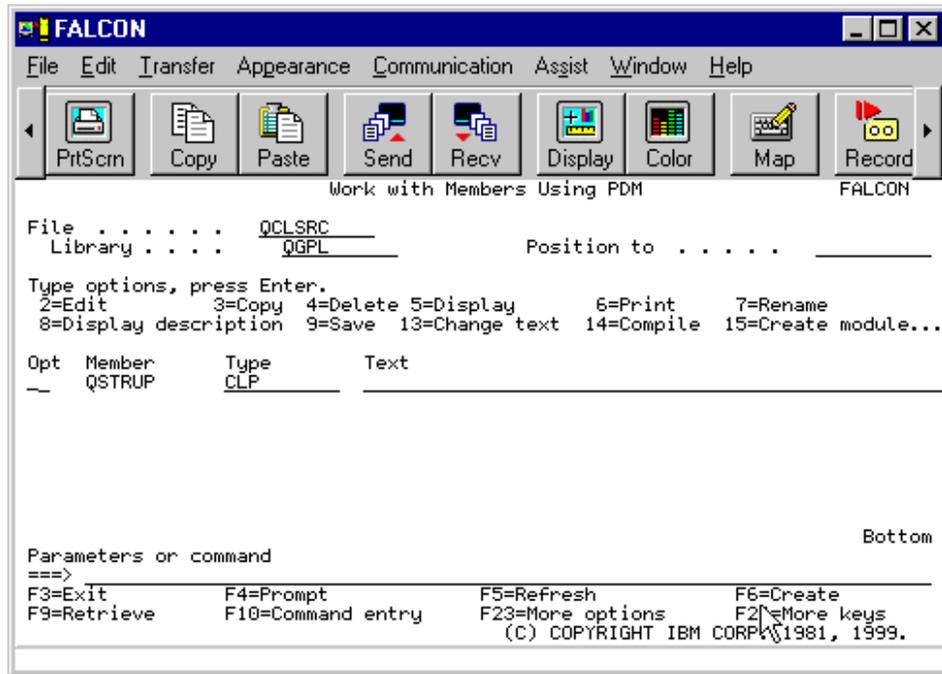
Figure 148. Work with Members Using PDM

When finished, press **F3** (Exit). On the Exit panel, be sure to select **Y** at the Change/Create member option.
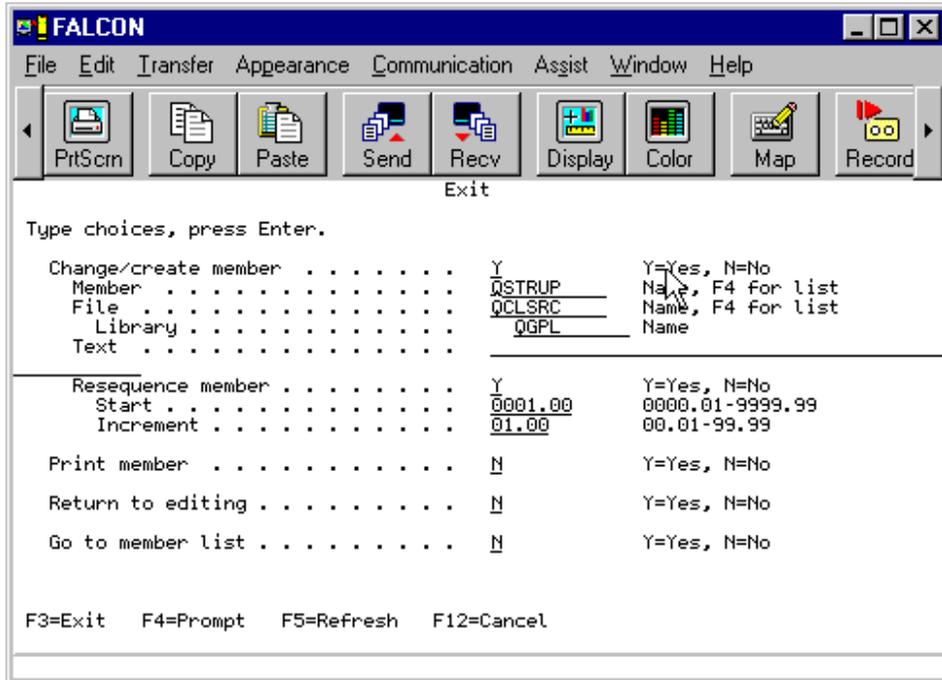
Figure 149. SEU Exit panel

Option 14 will compile the source member and create the program by the same name and in the same library. Use the `WRKOBJ` command (for example, `WRKOBJ MYLIB/MYPGM`) to verify that your program exists.

For more information about Control Language Programs, refer to the following manuals:

- *CL Programming V4R4*, SC41-5721
- *AS/400 CL Reference V4R4,* SC41-5722

6.3 Redirection from AS/400 ITD Server to NT redirector

As mentioned earlier in the 5.4, "Software distribution" on page 101, redirector servers act as local storage of IT Director software distribution packages.

The following is an overview of the environment that we will use in this scenario:
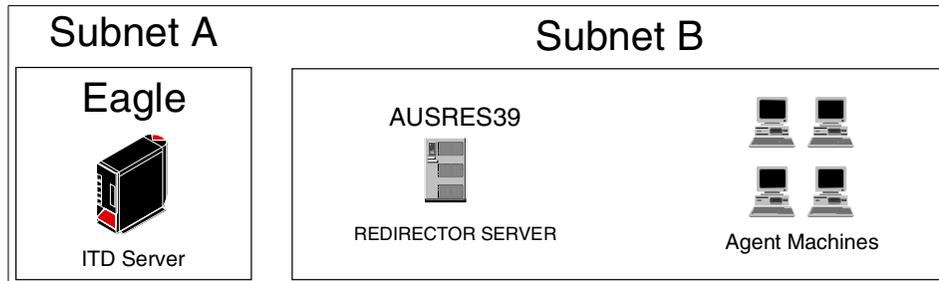
Figure 150. Scenario environment overview

The IT Director Management Server, called EAGLE, is on a separate subnet (Subnet A). The redirector server, AUSRES39, and some Windows NT based Agent machines are on Subnet B.

When a software distribution command is sent to an Agent machine, that machine checks its settings. If those settings indicate that it should use AUSRES39 if possible, it will attempt to contact that machine and request the software from there. If the connection is established, AUSRES39 will check to see if it has the request in its local storage. If the package is not currently stored on AUSRES39, it requests the package from EAGLE, stores it, and then sends it on to the Agent machines.

In this way, the package is sent across the Wide Area Network (WAN) only once, as opposed to sending it once to every Agent in the remote subnet. Thus, a considerable chunk of bandwidth is saved, and the software distribution process is accelerated.

Figure 151 on page 160 is an overview of the process.
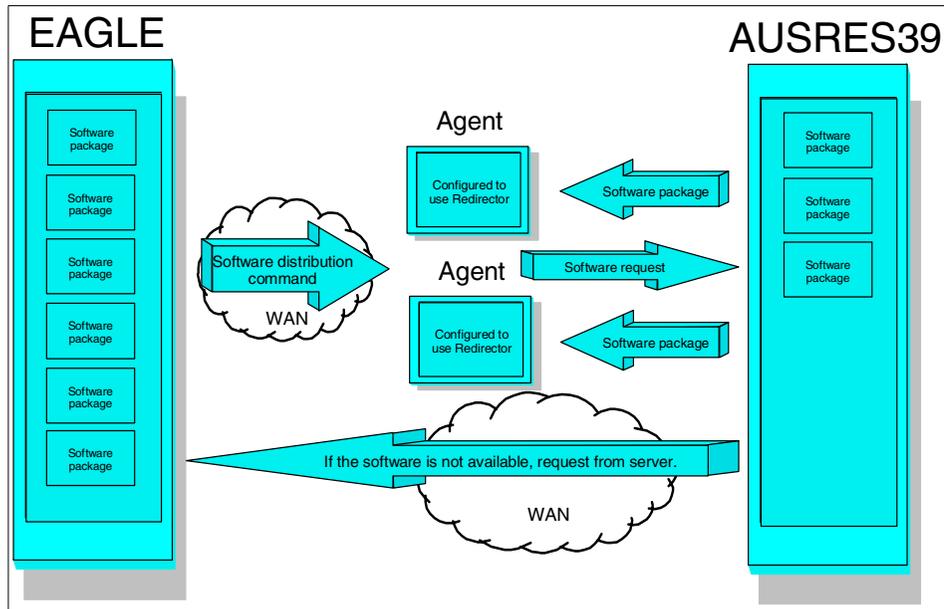
Figure 151. Overview of software redirection

As you can see, the software distribution command is sent to the Agents, which send on a Software request to AUSRES39. And, if the software is not available, it is requested from EAGLE by AUSRES39. After this, software distribution proceeds to Agent machines. Since the software distribution is only a small command and contains no files, it is quickly transferred over even the slowest WANs. If AUSRES39 does not contain the requested package, there is a significant transfer of data across the WAN.

6.3.1 Prerequisites

To replicate this scenario in your environment, you need the following:

- An AS/400 system with IT Director Management Server installed (EAGLE).

- Latest cumulative PTF and PTF SF60739 and SF61121 for IT Director Management Server installed (EAGLE).

- A Windows NT system with IT Director Agent installed (AUSRES39).

- IT Director Agent machine(s) that support software distribution.

- Administrator level access to both of the above systems.

- Basic knowledge of Windows NT User Management.

The following items are not mandatory, but recommended:

- An extra Windows NT system (for extracting TWGSHARE.EXE)
- A group containing the machines that you wish to have use Redirection (otherwise, you have to set redirection preferences one machine at a time).

6.3.2 Creating an ITDADM user profile on AS/400

To create a user profile, use the `CRTUSRPRF` command on the AS/400 command line. Type the `CRTUSRPRF` command on the AS/400 command line, then press **F4**. The command prompt screen is displayed. Enter in the user profile (ITDADM) and a password. This password should be same as the one in the Windows NT domain. Enter `*SECOFR` for *User class* parameter. Then, type **Enter**. A new user profile is now created.

Note

In this example, ITDADM is created as *SECOFR. The kind of security given to this new user profile depends on what kinds of tasks the default user profile does. For detailed information about default user profile, refer to the *Tivoli IT Director User's Guide*. But, whatever level of security you provide for this user profile in the AS/400, keep the password secret because the same user profile is used in IT Director and Windows NT.

```
E EAGLE                                                         _ □ X
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Create User Profile (CRTUSRPRF)

  Type choices, press Enter.

  User profile . . . . . . . . . . > ITDADM        Name
  User password  . . . . . . . . .  _____       Name, *USRPRF, *NONE
  Set password to expired  . . . .  *NO            *NO, *YES
  Status . . . . . . . . . . . . .  *ENABLED       *ENABLED, *DISABLED
  User class . . . . . . . . . . . > *SECOFR        *USER, *SYSOPR, *PGMR...
  Assistance level . . . . . . . .  *SYSVAL        *SYSVAL, *BASIC, *INTERMED...
  Current library  . . . . . . . .  *CRTDFT        Name, *CRTDFT
  Initial program to call  . . . .  *NONE          Name, *NONE
    Library  . . . . . . . . . . .  _____       Name, *LIBL, *CURLIB
  Initial menu . . . . . . . . . .  MAIN           Name, *SIGNOFF
    Library  . . . . . . . . . . .    *LIBL        Name, *LIBL, *CURLIB
  Limit capabilities . . . . . . .  *NO            *NO, *PARTIAL, *YES
  Text 'description' . . . . . . .  *BLANK
  _____

                                                                 Bottom
  F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
  F13=How to use this display       F24=More keys

MA   a               MW                                           07/037
```

Figure 152. CRTUSRPRF command prompt screen

6.3.3 Assigning ITDADM as the IT Director default user profile

To assign default user profile, use the CHGITDSVRA command. For more detailed information about this operation, please refer to Chapter 4, "IT Director for AS/400: Installation and configuration" on page 27. Type the CHGITDSVRA command on AS/400 command line and hit **F4**. In the command prompt screen, enter ITDADM as *Default User Profile* parameter, then press **Enter**.

```
┌─────────────────────────────────────────────────────────────┐
│ ▣▮ EAGLE                                              _ □ ✕   │
│ File  Edit  Transfer  Appearance  Communication  Assist  Window  Help │
│                Change ITD Server Attributes (CHGITDSVRA)      │
│                                                               │
│  Type choices, press Enter.                                   │
│                                                               │
│  Autostart . . . . . . . . . . .   *NO      *SAME, *YES, *NO  │
│  Default User Profile . . . . . > ITDADM     Character value  │
│  Time zone . . . . . . . . . . .   CST      *SAME, *LOCALE, GMT, UTC... │
│  Server License Key:               _                          │
│    Key Positions 1-4  . . . . . .  1I3J     Character value    │
│    Key Positions 5-8  . . . . . .  49QF     Character value    │
│    Key Positions 9-12 . . . . . .  TFM7     Character value    │
│    Key Positions 13-16  . . . . .  4RMB     Character value    │
│    Key Positions 17-20  . . . . .  MDVB     Character value    │
│                 + for more values _                           │
│                                                               │
│                                                               │
│                                                               │
│                                                      Bottom   │
│  F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display │
│  F24=More keys                                                │
│ ──────────────────────────────────────────────────────────── │
│ MA▮   a              MW                              05/037   │
└─────────────────────────────────────────────────────────────┘
```

Figure 153. The CHGITDSVRA command

6.3.4 Creating an ITDADM user profile on Windows NT

Now that the IT Director Management Server on the AS/400 uses the
ITDADM user ID, you can create the same user ID on the Windows NT
machine(s) that you wish to use as redirectors. You can do this by creating
either a domain user ID (default for this scenario) or a local user ID. To do
this, you must:

1. Go to the *User Manager for Domains* on the machine you wish to use as
   redirector.

2. Create a new user with the following settings:
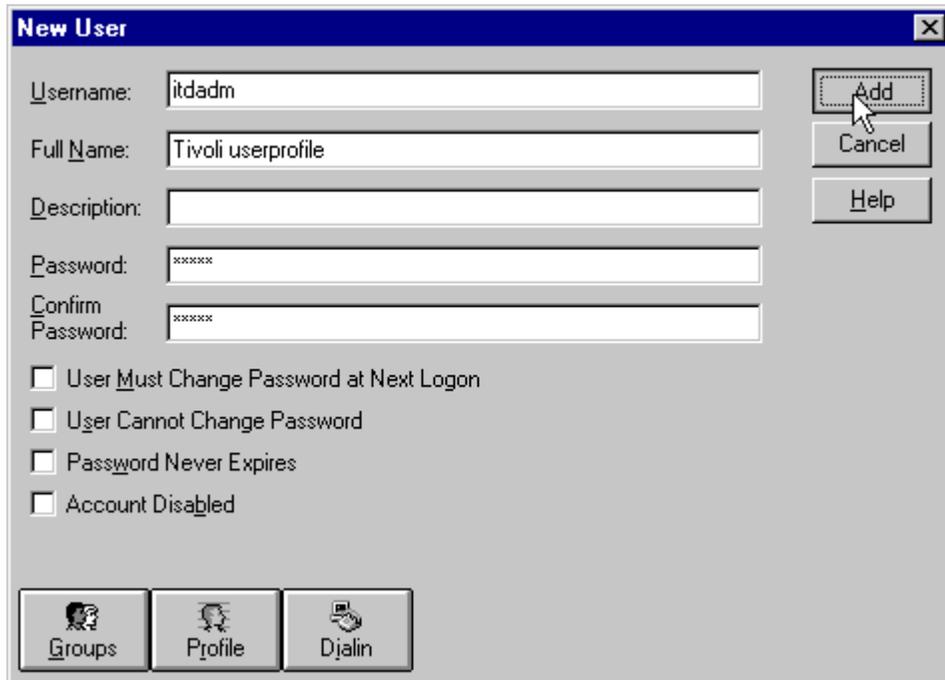
Figure 154. User ID settings

In the Username field, input ITDADM (caps optional). You may also want to enter a description in the appropriate field to prevent accidental deletion of the user ID. Enter the password for this user ID. This password *must* be the same password that is used on the AS/400. If the password is ever changed on the AS/400, it must be changed here as well. Then, remove the check mark from the User Must Change Password at Next Logon box. Go to the Groups window and make sure that this user ID belongs to the domain Administrators group.

6.3.5 Getting TWGSHARE.EXE

In order to allow access to a share with no user ID and password (as often is the case with IT Director), the TWGSHARE file is needed. Unfortunately this file only comes with the Windows NT version of the IT Director Management Server. To get this file, you must perform the following steps:

1. Install the IT Director Management Server on any machine (use default settings for a quick installation and refer to the *Tivoli IT Director User's Guide* for instructions, if necessary).

2. Once the server is installed, get the file called TWGSHARE.EXE from the C:\Tivoliwg\Bin directory and copy it to a diskette or network drive.

3. Uninstall the IT Director Management Server from the machine (remember to reinstall the Agent software).

6.3.6 Creating a share and using TWGSHARE on Windows NT

The next step is to create a share that is used to store the software distribution packages and then use the TWGSHARE.EXE file to open this share for all access. This is done by using the following steps:

1. Copy the TWGSHARE.EXE file into the C:\Tivoliwg\Bin directory (if you installed the IT Director Agent software in another directory, please adjust the path accordingly) on the selected redirector machine. In this case, we use AUSRES39 as the example Windows NT server.

2. Create a new directory on the server called Redirect.

3. Assign Read access permissions to the *Everyone* group and Full Control to the ITDADM user ID. Apply these permissions for both the Share and File system. For an example, see Figure 155.
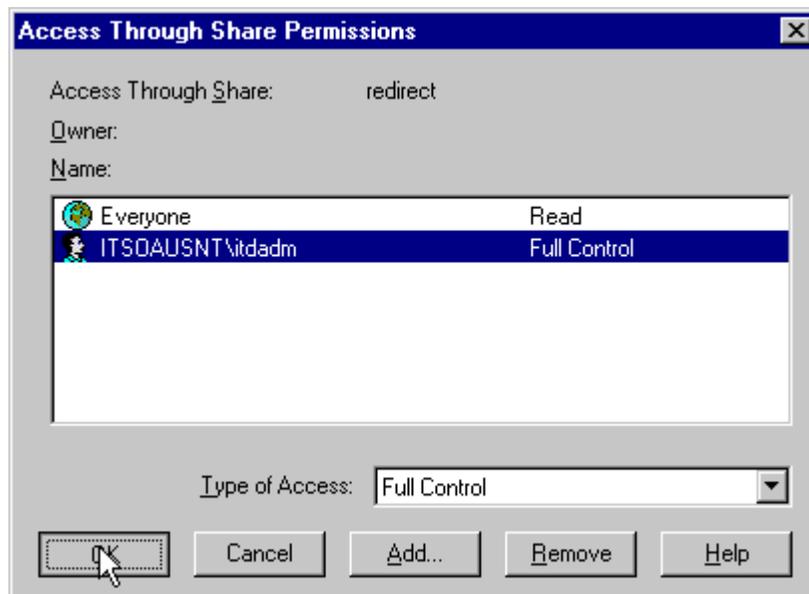
Figure 155. Setting Share Permissions

Administrators and System accounts should also be allowed access to the file system in this directory, but those settings should be decided by the local server administrator.

4. After creating the share, you have to add the share to a list of shares that do not need a user ID to log on. To do this, go to a *Command Prompt* and type in the command: `twgshare -a redirect` and press **Enter**.
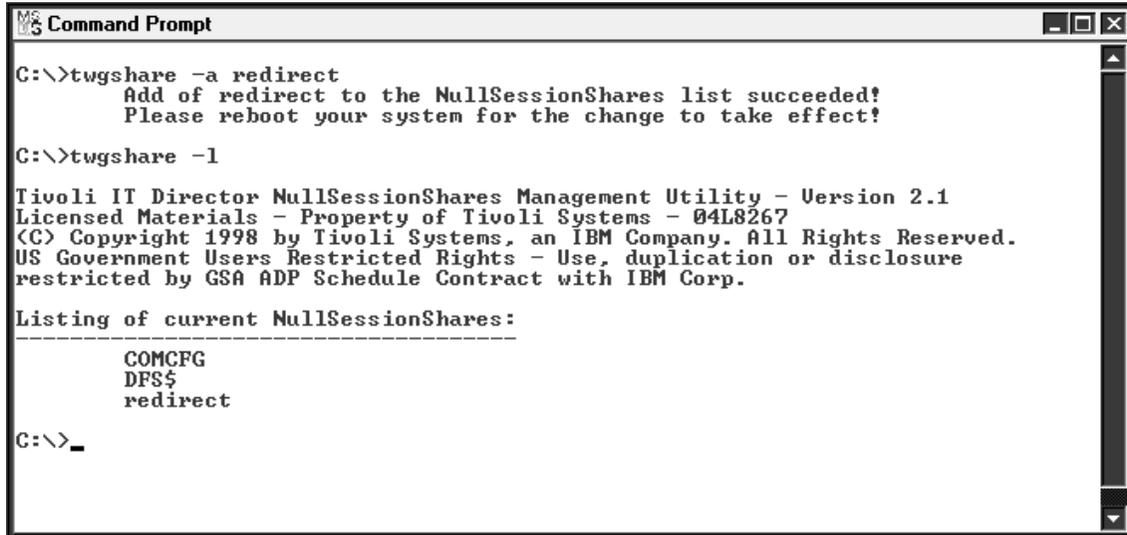
```
Command Prompt                                                    _ □ ✕

C:\>twgshare -a redirect
        Add of redirect to the NullSessionShares list succeeded!
        Please reboot your system for the change to take effect!

C:\>twgshare -l

Tivoli IT Director NullSessionShares Management Utility - Version 2.1
Licensed Materials - Property of Tivoli Systems - 04L8267
(C) Copyright 1998 by Tivoli Systems, an IBM Company. All Rights Reserved.
US Government Users Restricted Rights - Use, duplication or disclosure
restricted by GSA ADP Schedule Contract with IBM Corp.

Listing of current NullSessionShares:
-------------------------------------
        COMCFG
        DFS$
        redirect

C:\>_
```

Figure 156. Using TWGSHARE.EXE

After adding the share to the *NullSessionShares* list, you can verify it by using the `twgshare -l` command, and pressing **Enter**.

5. Reboot the machine, and you are done.

Hint

Since most redirector servers are remote machines, you might want to consider using Remote Control and file transfer to facilitate this scenario.

6.3.7 Settings in IT Director

To allow the Agent machines to use AUSRES39 as the redirector server, it must be configured in the IT Director Management Console. You can do this with the following two steps:

1. To configure AUSRES39 as a redirector, select **Options -> Server Preferences**. Then, select the **File Distribution Servers** tab. To add a new server, click **Add** to open the screen shown in Figure 157.

Figure 157. Adding redistribution servers

Here, you configure the UNC path of the redirection share, in this case, specify \\ausres39\redirect, then click **OK**.

The redirection share should now be visible in the Share Names list (see Figure 158 on page 168).
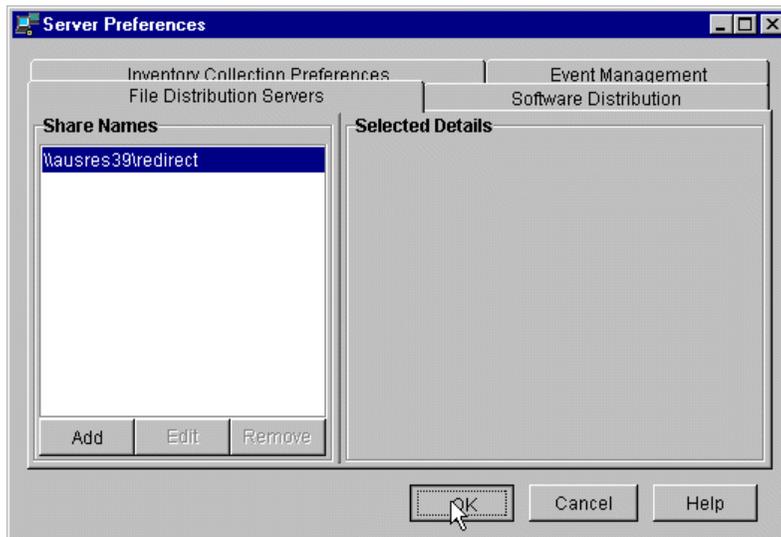
Figure 158. Server Preferences after adding the share

You can then close the Server Preferences screen by clicking **OK**.

2. Next, we will assign the Agent machines to use the newly configured redirector server.

To configure the target machines, right-click on the **Scenario machines** group and select **Distribution Preferences**.
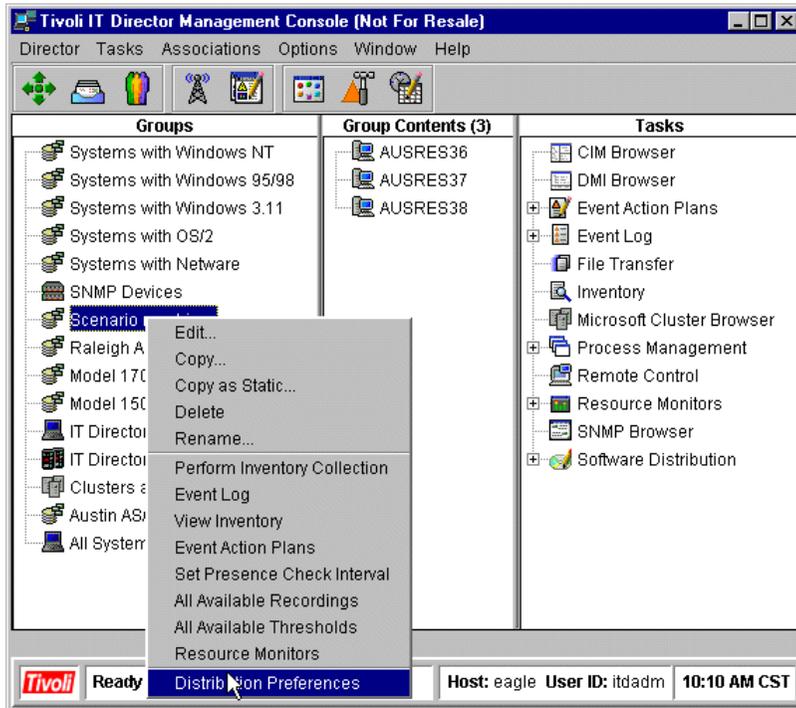
Figure 159. Starting Distribution Preferences

In the window shown in Figure 160 on page 170, click **Add**, enter the name of the share, \\ausres39\redirect, and click the **Restrict share selection to list**. This will force the machines to use AUSRES39 as their redirector server and only go to EAGLE (the IT Director Management Server) in case AUSRES39 is not available. Next, select **File -> Save**.
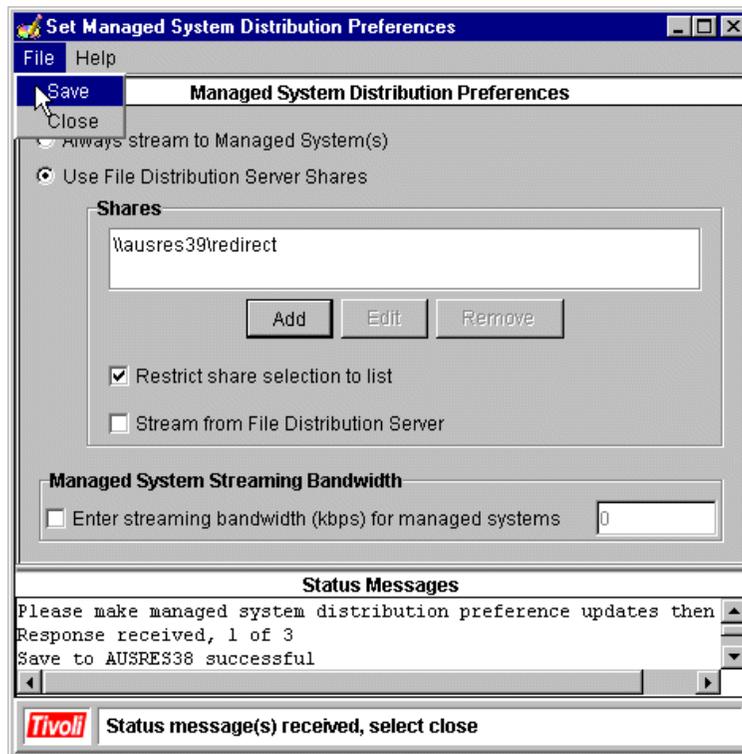
Figure 160. Setting Distribution Preferences

In the bottom of the screen you can see the *Status Messages* field and the responses from the Agent machines. This screen shows all the machines that received the new settings.

The Agents are now using redirected software distribution. If you want to test software distribution now, you can refer to 5.4, "Software distribution" on page 101 for instructions on how to create a software package and how to distribute it.

6.3.8 Hints and tips

The following are hints and tips for this management scenario and should be useful for your management environment.

- A good way to decide which redirector should be assigned to which machine is based on Default Gateway attribute (found in the IP Address folder).

- If redirected distribution failed, check if the AS/400 is able to find the Windows NT share directory. AS/400 uses a QNTC file system to access Windows NT shared directories. This can be done with the following procedure:

  1. Sign on to the AS/400 using the ITDADM user profile (default user profile).

  2. Execute the AS/400 commands shown below on the AS/400 command line:

     `CD QNTC`

     `CD AUSRES39` (Windows NT machine that is sharing the directory)

     If you receive message "Object not found", type the command:

     `CRTDIR AUSRES39`

     Then, type `CD AUSRES39` again. Then execute

     `WRKLNK`

  3. You can see the shared directory names on Windows NT. If you can not see any directories (except *DSK*), even if you have created a shared resource on the Windows NT system, you need to check the QNTC file system configuration. For detailed information about the QNTC file system, refer to *AS/400 - Implementing Windows NT on the Integrated Netfinity Server,* SG24-2164.

```
EAGLE                                                      [_][□][X]
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                        Work with Object Links

Directory . . . . :    /QNTC/AUSRES39

Type options, press Enter.
   3=Copy   4=Remove   5=Next level    7=Rename    8=Display attributes
  11=Change current directory ...

Opt    Object link           Type      Attribute    Text
 __      redirect            DDIR
 __      DSK                 DDIR




                                                         Bottom
Parameters or command
===>  _____
F3=Exit   F4=Prompt   F5=Refresh   F9=Retrieve   F12=Cancel   F17=Position to
F22=Display entire field              F23=More options

MA▌    c               MW                              10/002
```

Figure 161. The WRKLNK command

Note

If you created the directory to see the shared directory by using the CRTDIR
command, it will disappear when the AS/400 is rebooted. You need to
re-create it.

> 4. Type 5 (Next Level) on Opt column at shared directory, then press
>   **Enter**. You will see the contents of the shared directory as shown in
>   Figure 162 on page 173.

```
EAGLE                                                          _ □ X

File  Edit  Transfer  Appearance  Communication  Assist  Window  Help

                          Work with Object Links

Directory . . . . :    /QNTC/AUSRES39/redirect

Type options, press Enter.
  3=Copy   4=Remove   5=Next level   7=Rename   8=Display attributes
  11=Change current directory ...

Opt   Object link           Type      Attribute    Text
 __    qiviut                DSTMF
 __    10tww40j              DDIR
 __    103vnjv2              DDIR
 __    103v4e5t              DDIR




                                                                Bottom
Parameters or command
===> _____
F3=Exit   F4=Prompt   F5=Refresh   F9=Retrieve   F12=Cancel   F17=Position to
F22=Display entire field           F23=More options

MA    c               MW                                       10/002
```

Figure 162. Inside the shared directory

6.4 Redirection from AS/400 ITD Server to AS/400 redirector

Using an AS/400 as a redirector server is otherwise nearly identical to using Windows NT as a redirector, but in this case, the TWGSHARE.EXE file cannot be used to provide null credentials access. This slight difference creates the need to send a user ID and password to the redirector in order to access the share. On Windows NT, the user ID sent is the one used to start the IT Director Agent (Director Support Program) service. This is the System Account by default. In order to allow access, this must be changed to an administrator level account. In this scenario, we will use the ITDADM account created in the previous scenario for both the AS/400 and Windows NT environment.

Other operating systems use the user ID and password that you are logged on with to access the share. Therefore, you have the choice of allowing Read access to everyone or using a Windows NT machine as the redirector in cases where you have plenty of non-Windows NT Agent machines.

6.4.1 Prerequisites

The following is a list of items needed to replicate this scenario:

- An AS/400 system with IT Director Management Server installed (EAGLE).
- An AS/400 system with IT Director Management Agent installed (FALCON).
- An Windows NT system with IT Director Management Agent installed (AUSRES37).
- Administrator level access to the AS/400 and Windows NT machines.

6.4.2 Creating an ITDADM user profile in AS/400

For instructions on how to create ITDADM user ID in AS/400, please refer to 6.3.2, "Creating an ITDADM user profile on AS/400" on page 161.

6.4.3 Creating an ITDADM user profile in Windows NT

Please refer to 6.3.4, "Creating an ITDADM user profile on Windows NT" on page 163 on instructions on how to create an ITDADM user ID in Windows NT.

6.4.4 Changing an ITD service startup user ID in Windows NT

In this operation, you change the user ID used to start up the IT Director Agent service on the Windows NT platform. To accomplish this, go to the IT Director Management Console and open **Process Management**, then right-click on **Process Tasks** and select **Open**.

In the Process Task window, you need to enter a command in the following format:

```
twgipcsv -install Domain UserID Password
```

In this scenario, we used the ITSOAUSNT domain and ITDADM user ID. S, o the command will be:

```
twgipcsv -install itsoausnt itdadm password
```

To allow the adding of ITDADM into the proper usergroups, a Domain Administrator level user ID (in this scenario, ITDADM) must be given as a Login User ID for the task along with its password. The following is an example of the task that you need to create.
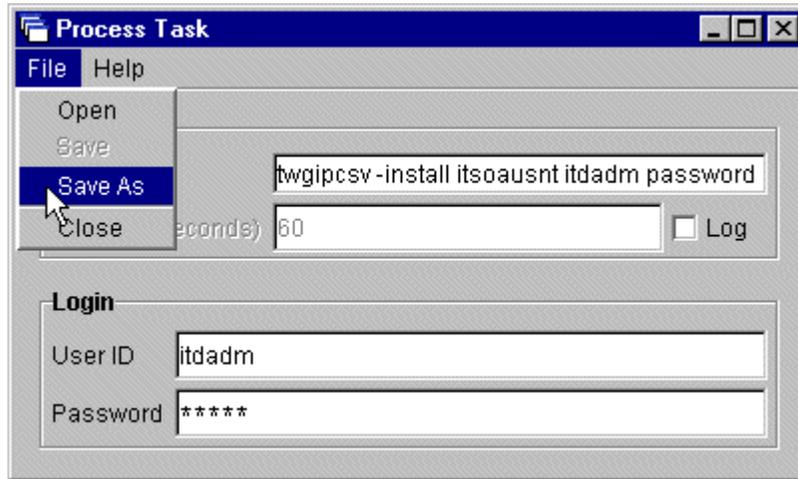
Figure 163. Creating a task for ITD startup user ID change

After you enter the necessary data, select **File -> Save** and enter a
descriptive name for the task (we used *Changing ID from ITD*).

After you have created this task, just drag and drop it onto the machine(s) that
you wish to configure to use FALCON as their redirector server (in our case,
AUSRES37). Select **Execute Now** or **Schedule the task for later execution**.
However, this operation will shut down the IT Director Agent service, thus
making the machine unavailable until it has been rebooted. Therefore, it is
recommended that this task is run during the middle of the night so that the
machine is shut down when people leave work and restarts again the
following morning.

Note

While it is possible to do this operation with a batch file that contains the
startup line for the IT Director Agent service, that batch file would also have
to contain the Administrator user ID and password. Sending this batch file
to users machines would be a serious security risk. On the other hand,
using the process task function does not leave files containing the
password on the hard drive, therefore, making it a secure function.

6.4.5 Creating and sharing the redirection directory on AS/400

To create a share on AS/400, you need to configure the AS/400 NetServer by
using the Operations Navigator. Detailed information about NetServer, refer
to *The AS/400 NetServer Advantage*, SG24-5196.

This section provides information on how to create a new directory on AS/400 and how to share it using the Operations Navigator. In this example, we create an */itdadm* directory (new directory) and share it.

1. Start Operations Navigator by using the ITDADM user profile and open the folders in this order **My AS/400 Connection -> Falcon** (system name where the share is created) **-> File Systems -> Integrated File System -> Root**.

2. Right-click **Root** and select **New Folder**.
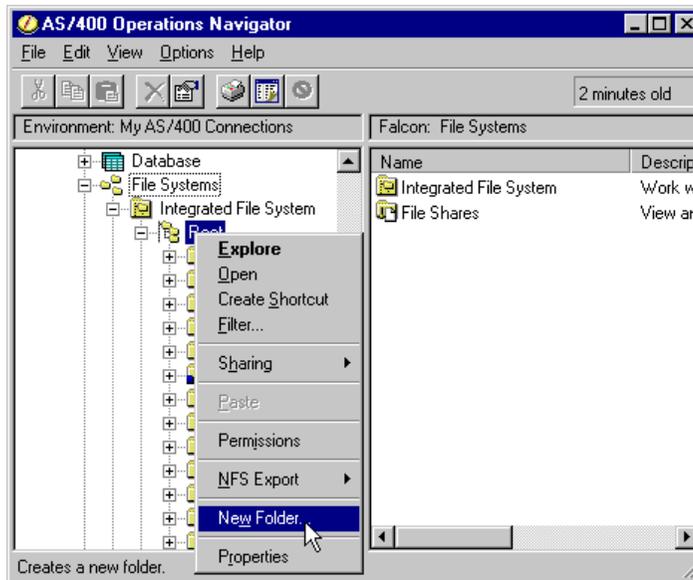
Figure 164. Creating a New Folder

3. In the New Folder window, type in a new folder name (we used *redirect*), then click **OK**.
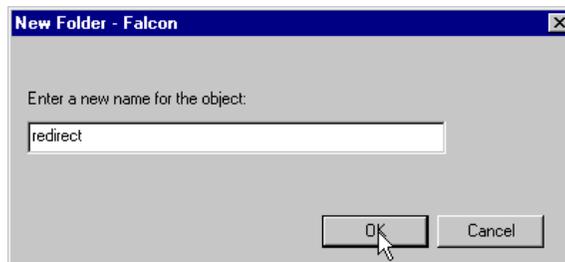
Figure 165. New Folder name

4. Go back to the Operations Navigator window, right-click on the directory you created in the previous process (redirect), and select **Sharing -> New Share**.
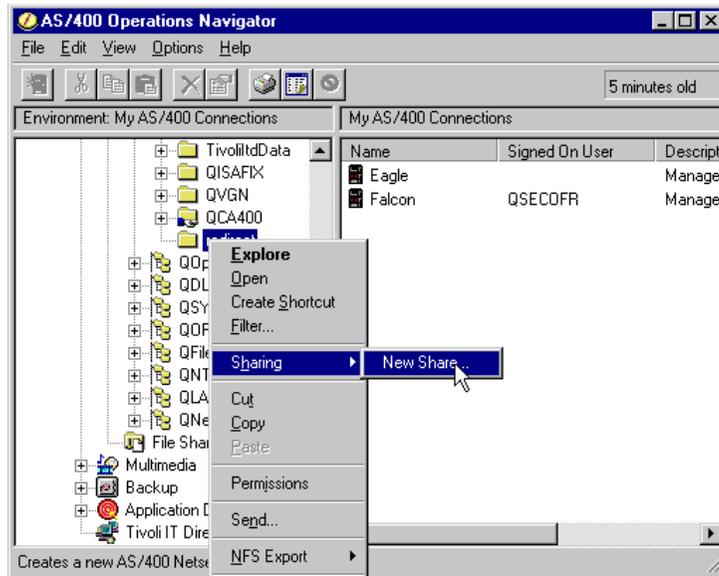
Figure 166. Creating a New Share

5. In the AS/400 NetServer File Share window, type in the share name (redirect) and Description (this is optional) information, then select **Read/Write** in the Access field.
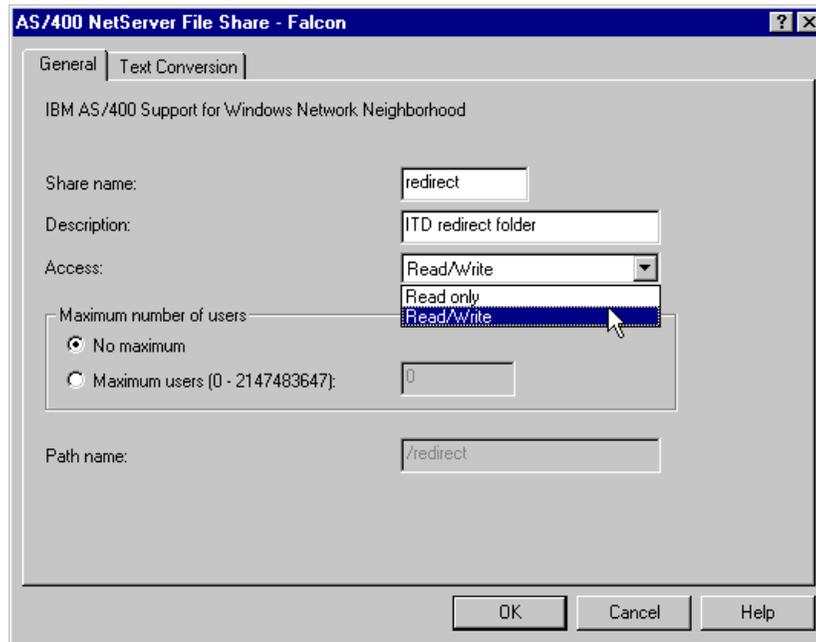
Figure 167. AS/400 NetServer File Share window

Note

If you do not select Read/Write in the Access field (if it is left as Read only),
Tivoli IT Director Management Server can not write to this directory, and
the redirected software distribution will not work.

---

6. If you want to change NetServer Name, you need to change it in the
   NetServer property. Default Name of NetServer is *Q+system name* (in this
   example, *Qfalcon*). To change it to *Falcon*, you need to stop NetServer.
   Right-click on **AS/400 NetServer** and select **Stop**.
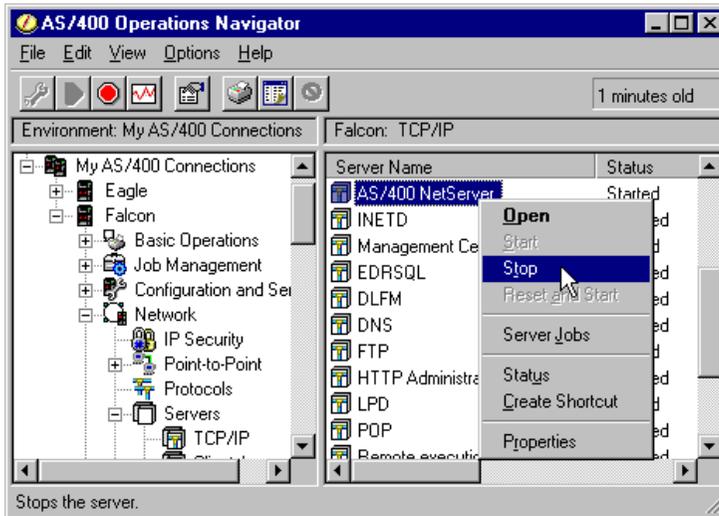
Figure 168. Stopping NetServer

7. Right-click on **AS/400 NetServer** again, then select **Properties**. In the
   AS/400 NetServer Properties window, click the **Next Start** button.

Figure 169. AS/400 NetServer Properties

8. In the AS/400 NetServer General Next Start window, type the server
   name. In this example, it is **Falcon**. Also, type the Domain name. This

name should be the same as the Windows NT domain name. In this
example, it is **ITSOAUSNT**. Then, click **OK**.
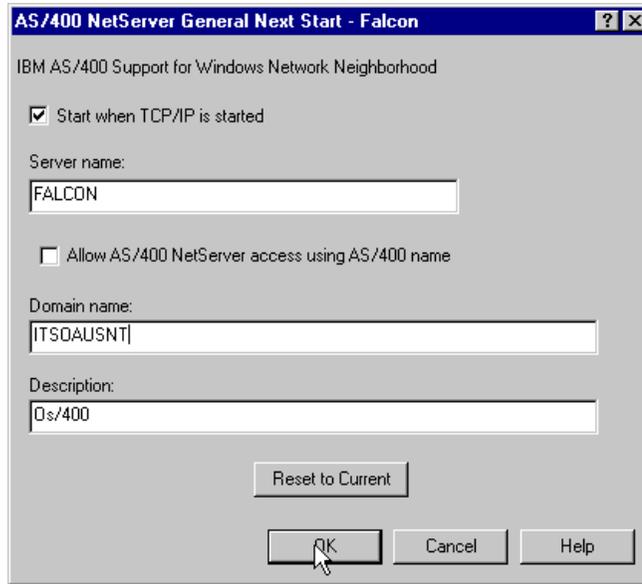
Figure 170. NetServer General Next Start window

9. Next, start NetServer again. Right-click on **AS/400 NetServer** and select
    Start.
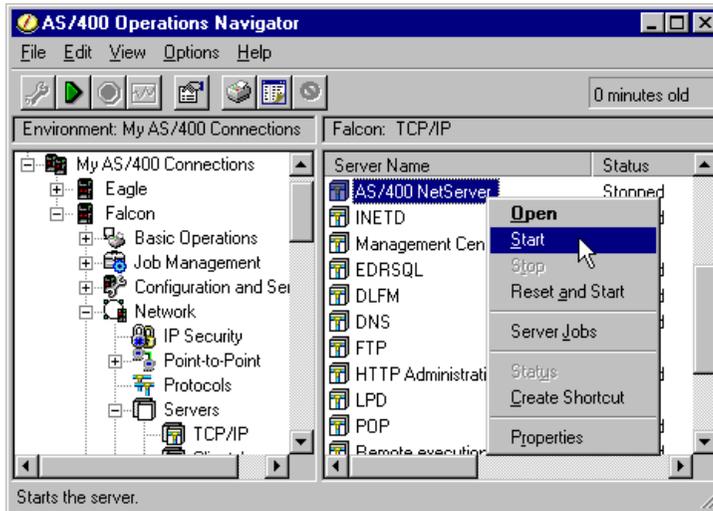
Figure 171. Starting NetServer

10.After you start NetServer, you can check if the Tivoli IT DIrector
Management Server machine can find this share or not. For more
information about this process, refer to 6.3.8, "Hints and tips" on page 170.
In this example, you should see *redirect* in directory */QNTC/falcon/*.

6.4.6 Settings in IT Director

For more information about these settings, refer to 6.3.7, "Settings in IT
Director" on page 166 and follow the steps. The only difference is that instead
of \\AUSRES39\Redirect, you need to use \\FALCON\Redirect as the
redistribution path.

6.5 File transfer to and from AS/400: A workaround

Though file transfer to and from AS/400 systems (with the exception of the IT
Director Management Server) is not yet supported in this release, this
scenario presents a workaround for those who need AS/400 file transfer.

The basic idea in this scenario is to use the AS/400 NetServer facility to share
AS/400 resources and then map those resources into a drive on an Windows
NT machine. After this is done, you can use that Windows NT machine as a
gateway for file transfer. The path of the transferred file and the machines
involved are illustrated in Figure 172.
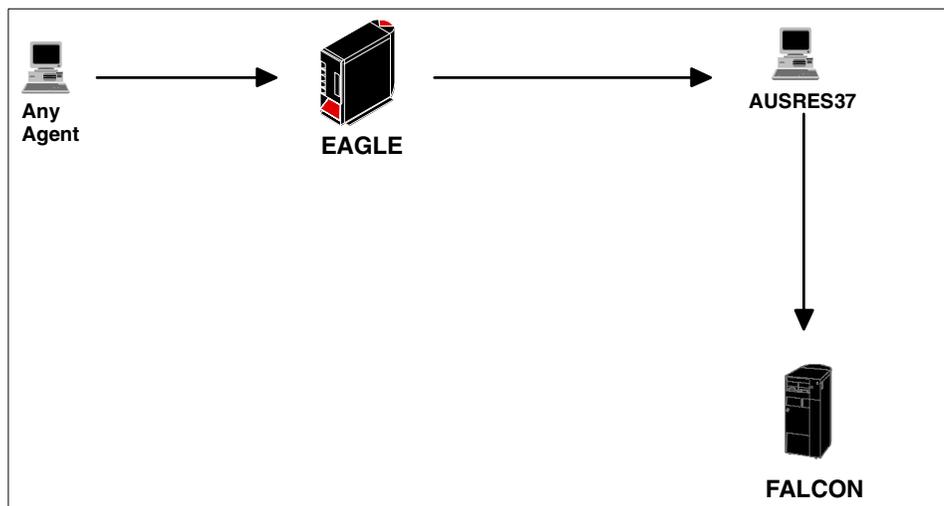
Figure 172. File transfer route to AS/400

> **Note**
>
> Since this scenario will present a way to access AS/400 file systems with IT Director user IDs, it is vital that you consider who will get access to the file transfer task. If *misused*, this function may cause a serious security breach. This scenario will also give hints on improving security.

6.5.1 Prerequisites

For this scenario, the following items are needed:

- An AS/400 machine with IT Director Management Server installed (EAGLE).
- An AS/400 machine with NetServer function and latest PTFs installed (FALCON).
- An Windows NT machine (does not have to be Windows NT Server) with IT Director Management Agent installed, preferably one dedicated for this function (AUSRES37).
- Administrator level access to the AS/400s and the Windows NT machine.

6.5.2 Changing IT Director service user name in Windows NT

The first thing you have to do is to create a local user ID that has the same name and password as the administrator in your IT Director Management Server, in our case, ITDADM. Assign this user ID to the Administrators group. Then, perform a logoff and a login with an ITDADM user ID.

Next, go to the Windows NT Control Panel and double-click **Services**. Select **Director Support Program** and click **Stop**. You will be asked to confirm stopping the service. Answer **Yes**. When the service is stopped, click **Startup**.
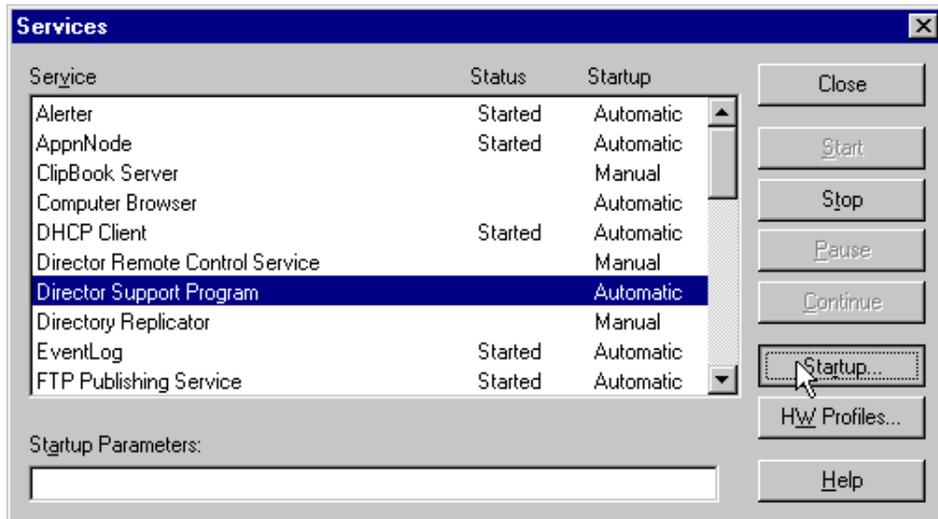
Figure 173. Changing the ITD Agent service settings

A screen will open where you can set the user ID the service uses to start. You set it by selecting the **This Account** button and typing in `itdadm` and typing in the password. This is demonstrated in the Figure 174 on page 184.

Figure 174. Setting the startup account for the service

Close this screen by clicking **OK**, and you will then return to the Services screen. Making sure that Director Support Program is still selected, click **Start**.

The service is now configured to send the ITDADM user ID and password if it is asked for network access rights.

6.5.3 Creating the shares on AS/400

Now you need to configure which directories will be shared. In this example, "/" (Root) is shared with the ITDADM user profile and can access all AS/400 resources.

1. Start the Operations Navigator using the ITDADM user profile and follow the tree **My AS/400 Connection -> Falcon** (name of the system that shares its root directory) **-> File Systems -> Integrated File System -> Root**.

2. Right-click on **Root**, then select **Sharing -> New Share**.
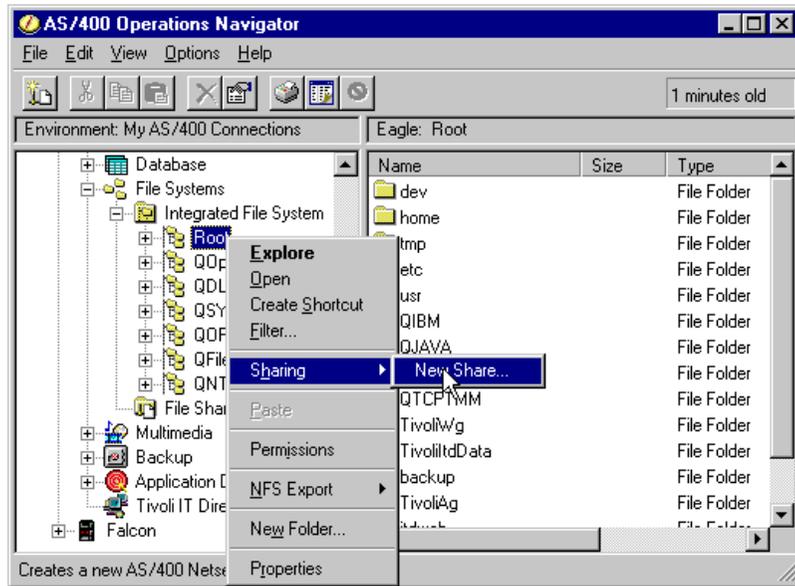
Figure 175. Creating a New Share

3. In the AS/400 NetServer File Share window, enter the share name (we used *itdshare*), description (this is optional), and select **Read/Write** in the Access field. To set the Maximum number of users, select **Maximum users** and type `1`. This setting enables only one client to access this share at the same time.
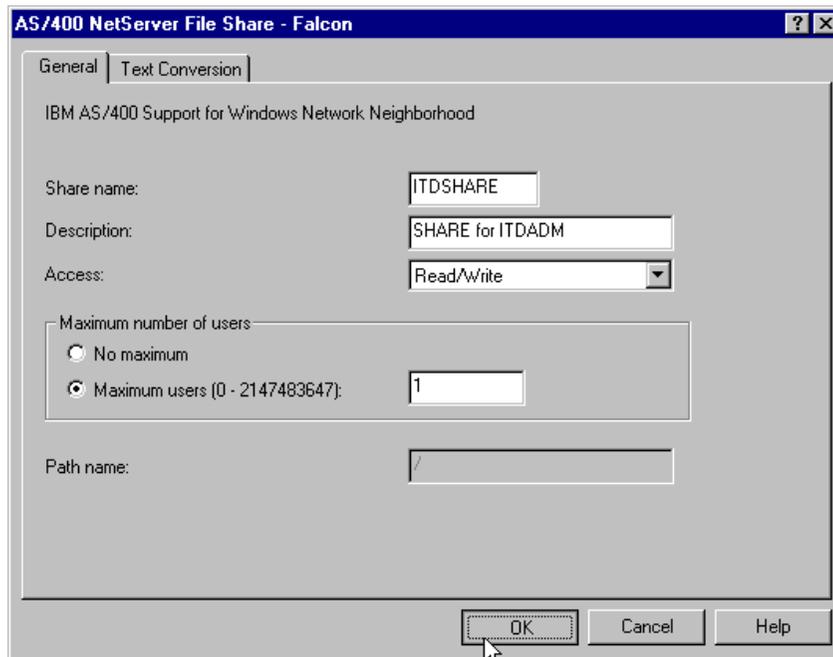
Figure 176. NetServer File Share window

4. If you have not started NetServer yet, you need to start it. Right-click on
   AS/400 NetServer in the Operations Navigator and select **Start**.

Figure 177. Starting NetServer

6.5.4 Accessing shares from Windows NT

Now, you need to access the shares from the Windows NT system. To accomplish this, start Windows NT Explorer and choose **Tools -> Map Network Drive**.
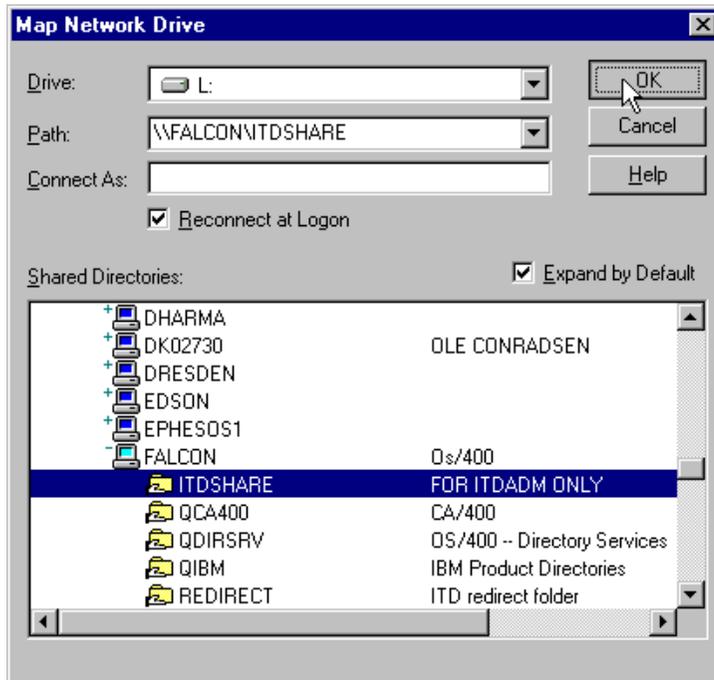
Figure 178. Mapping an AS/400 drive

Select a drive letter (we used L:, but this depends on your environment) and set the path of the shared resource, `\\falcon\itdshare`, in this case. Remember to check the **Reconnect at Logon** box; otherwise, you will lose this mapping at next reboot. When done, click **OK**.

When using the file transfer task to AUSRES37, the AS/400 share will show up as L: drive.

As we said earlier, there might be a security issue here. Allowing IT Director access to people who are not supposed to get into AS/400 resources lets them access AS/400 drives by using the file transfer task to the Windows NT machine as a gateway.

You *can* prevent this by using one of two simple procedures:

1. By using IT Director Console Security, remove file transfer task privilege from the users who should not have access to AS/400 resources.

2. Allow access to only groups that do *not* contain the machine that uses the AS/400 share files (in our case, AUSRES37).

The first one is the more secure manner because it disables the file transfer task completely for all persons that you define. The second choice's security depends on how you define your groups; so, there is margin for human error. This is why we recommend disabling file transfer over group access restrictions.

For more information about Console Security, please refer to *Tivoli IT Director User's Guide*.

6.6 Managing large-scale AS/400 environments

This scenario provides an example on operating in a large AS/400 environment. Usually, many AS/400s exist in a single corporation, but they are dispersed by purpose and department, and often, by location. They also consist of several different hardware models and contain many different software versions.

If you manage individual AS/400s using the Tivoli IT Director Management Server, it is not nearly as effective as dividing them into several groups. Since managing a group of machines takes almost the same amount of time and effort as managing a single machine, using groups can easily multiply your efficiency.

A sample environment is shown in Figure 179 on page 190.
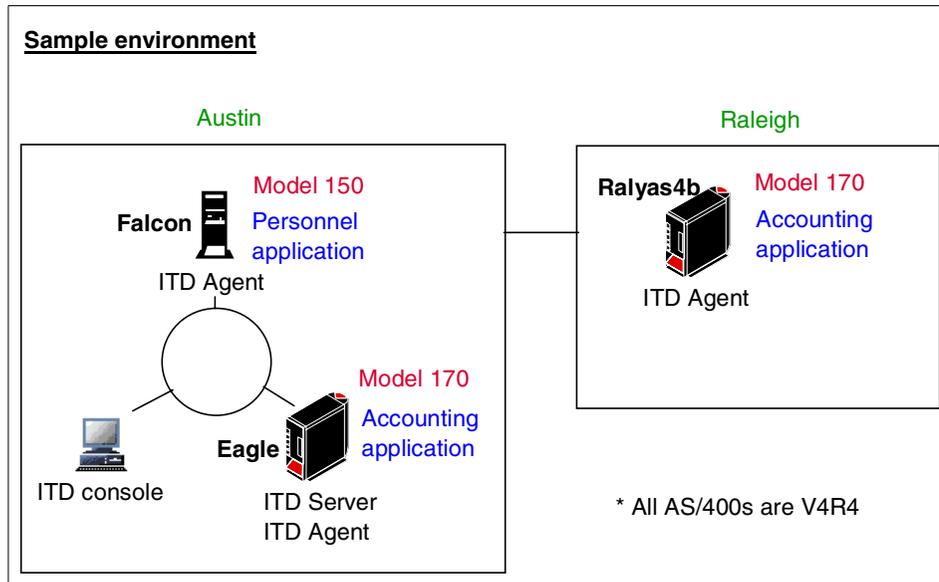
Figure 179. Sample environment for the scenario

This sample environment has three AS/400s. It is divided into two locations, Austin and Raleigh. And, it has two types of applications, accounting and personnel.

Scenario overview

The following are our scenario overview in this section:

1. The machines in the sample environment are grouped by three different factors; these are as follows:

   - Application

   - Model

   - Location

2. We will be using the following features for each group:

   - Availability management

   - Other management examples

In this scenario, each task is not explained in detail. For detailed information about Tivoli IT Director Management Server's tasks, refer to Chapter 5, "Using Tivoli IT Director for AS/400" on page 63. After you create the groups, these AS/400s are categorized as shown in Figure 180 on page 191.
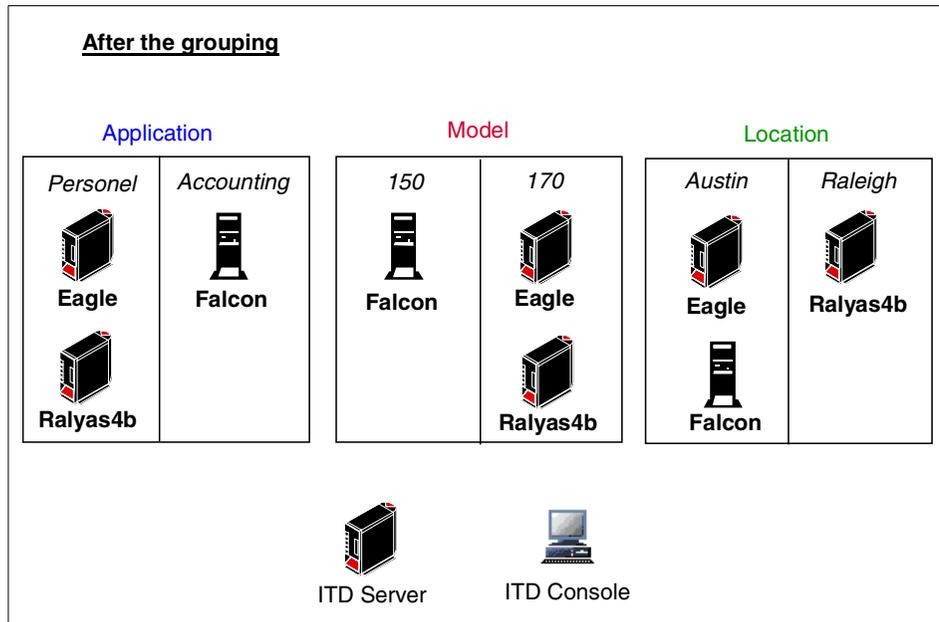
Figure 180. Categorized AS/400 environment

6.6.1 Creating groups

At first, you need to create groups. For detailed information about a group, refer to Chapter 4 of the *Tivoli IT Director User's Guide*. In this section, one static group and two dynamic groups are created.

- Static group
    - Application
- Dynamic groups
    - Model
    - Location

Even though Application belongs to a static group, you *can* group machines dynamically according to the software they have installed. Application was created as a static group to demonstrate static group creation.

This section provides information on creating each group.

6.6.1.1 Static group

To create a static group, you need to add each device manually. And, you can create it by copying an existing default (or dynamic) group.

In this example, the static group is created manually.

1. Right-click on the **Groups** pane. Select **New Static...**.
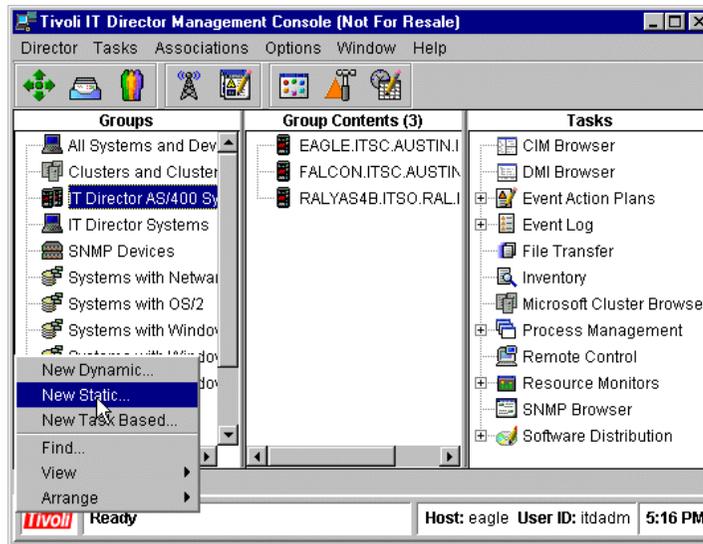
Figure 181. Creating a new static group

2. A new pane is displayed. Drag and drop AS/400 devices from the *Group Contents* pane onto the Static Group Editor pane. In this example, Eagle and Ralyas4b are selected. Then, press **Save**.
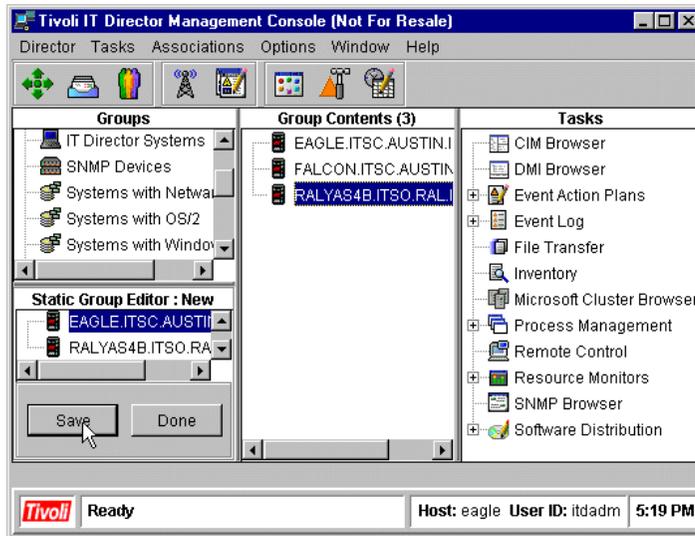
Figure 182. Select device for new group

3. The *Save As* window is then displayed. Type the name for the new group (we used Account), then press **OK**.
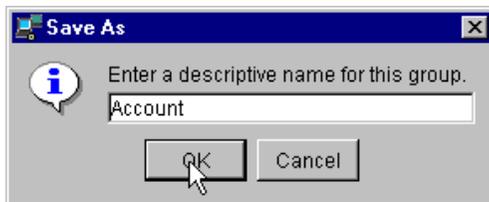
Figure 183. Save As window

4. Confirm that the new group was created and that it contains the devices you selected. You can check this by selecting the group in the *Groups* pane and watching if the selected devices show up in the *Group Contents* pane. Then, press **Done**.
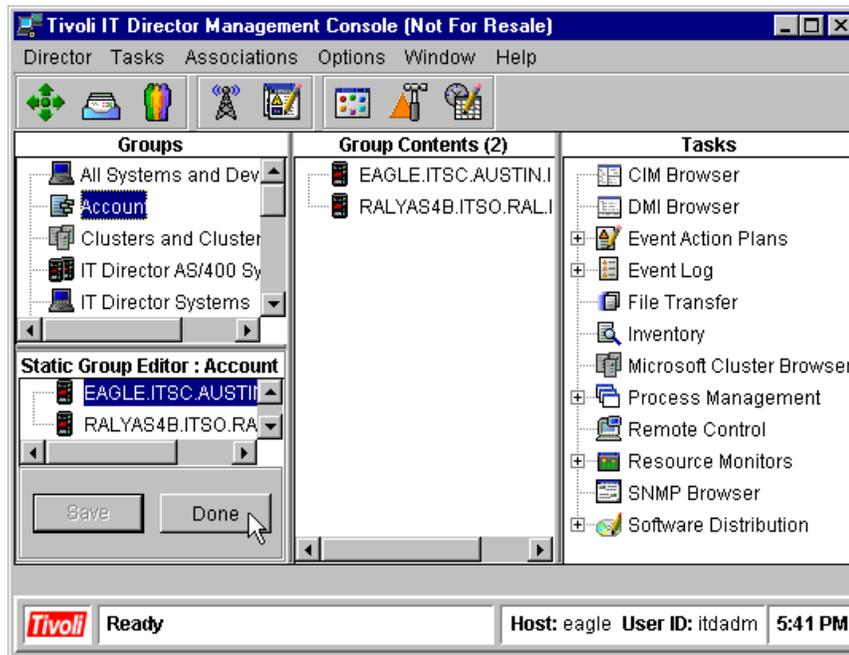
Figure 184. Static group creation complete

5. Create another static group using the same method. In this example, add the device Falcon and save the group as Personnel.
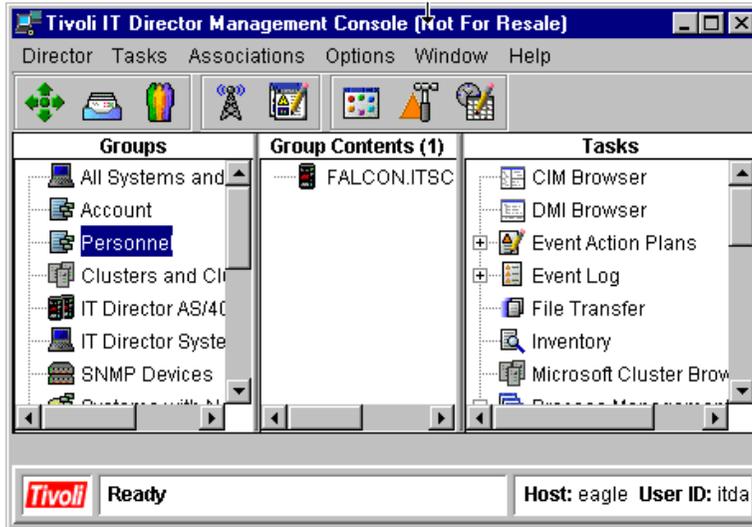
Figure 185. Create another static group

6.6.1.2 Dynamic group

If you create a dynamic group, devices are added automatically to the group if their inventory information matches the parameters you selected. In this example, two dynamic groups are created, Model and Location.

Model

1. Right-click on the **Groups** pane. Select **New Dynamic...**.
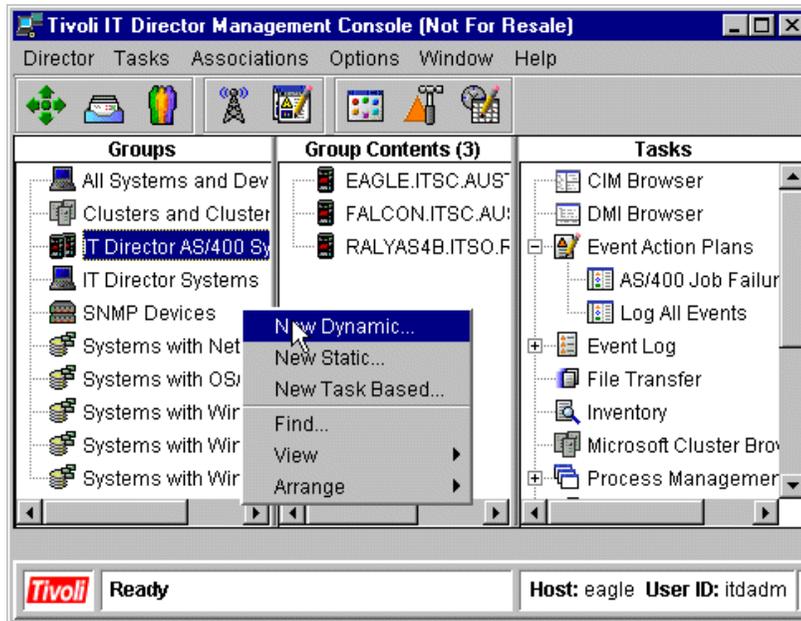
Figure 186. Create a new dynamic group

2. The Dynamic Group Editor window is displayed. In the Available Criteria pane, select **Inventory (AS/400) -> AS/400 Hardware -> Model**, then select **150** and then press **Add**.
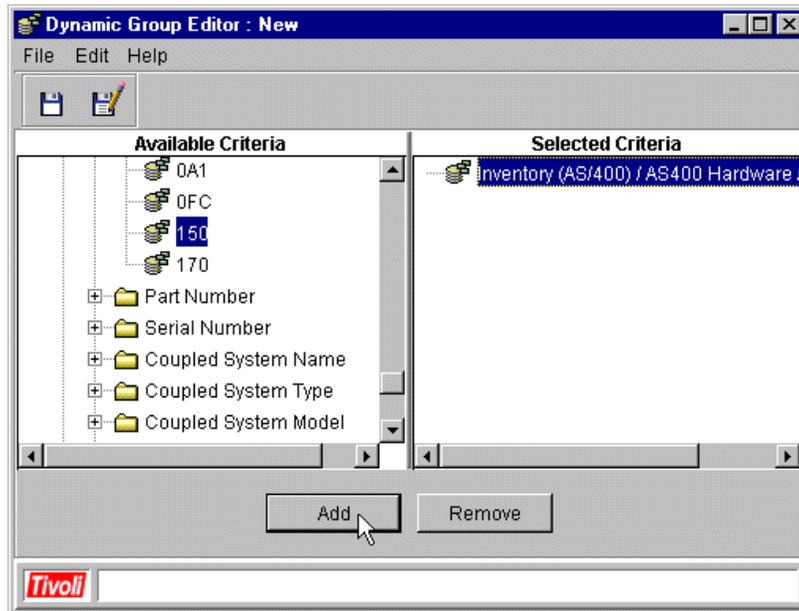
Figure 187. Select model for a new dynamic group

3. Select **File -> Save** or push the button as shown below

The *Save As* window is then displayed. Type in the group name. In this sample, the group name is *Model 150*. Then, press **OK**.

Figure 188. Save As window

4. You can confirm that the new group is created, and the AS/400 model 150 machine is added to the group automatically. In this example, only *Falcon* is added to the dynamic group automatically.
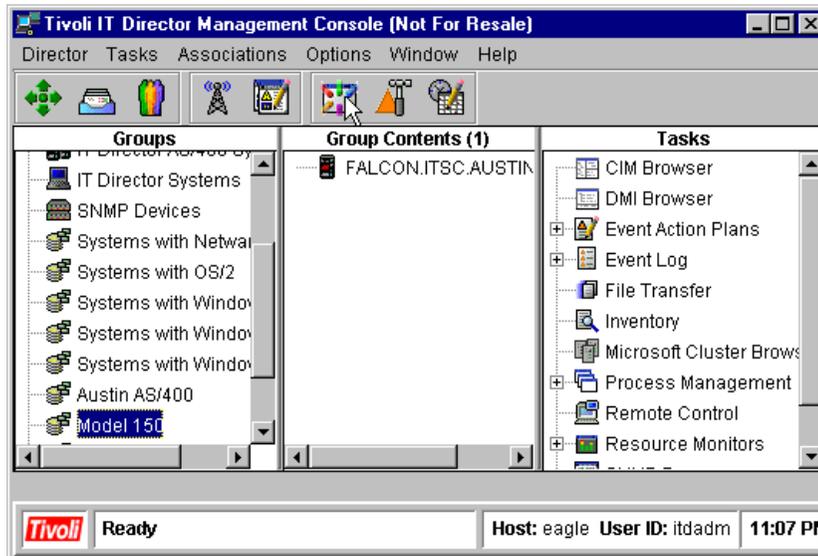
Figure 189. Dynamic group creation complete

5. Create another dynamic group using the same method. But, in this example, the group name is *Model 170*. Select **Inventory(AS/400) -> AS/400 Hardware -> Model -> 170** as criteria in the Dynamic Group Editor window. Eagle and Ralyas4b are then added to this group automatically.
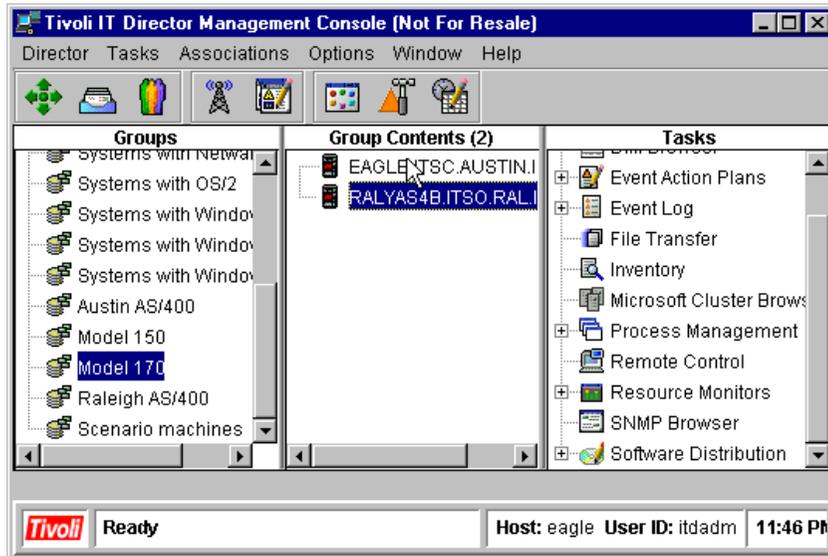
Figure 190. Another Dynamic Group created

Location
Basically, the way to create these groups is the same as in the Model group. The difference is the criteria used in the Dynamic Group Editor window. In this example, two dynamic groups are created, one for each location, Austin and Raleigh.

To create the group, go to the Dynamic Group Editor window, select **Inventory (AS/400) -> IP Address -> Default Gateway (Router) -> 9.3.187.129** (this is the default gateway the AS/400s in Austin use) to create a group for AS/400s in Austin, then select **File -> Save** to save the group. For the Raleigh group AS/400, select **Inventory(AS/400) -> IP Address -> Default Gateway (Router) -> 9.24.104.1**, then select **File -> Save**.
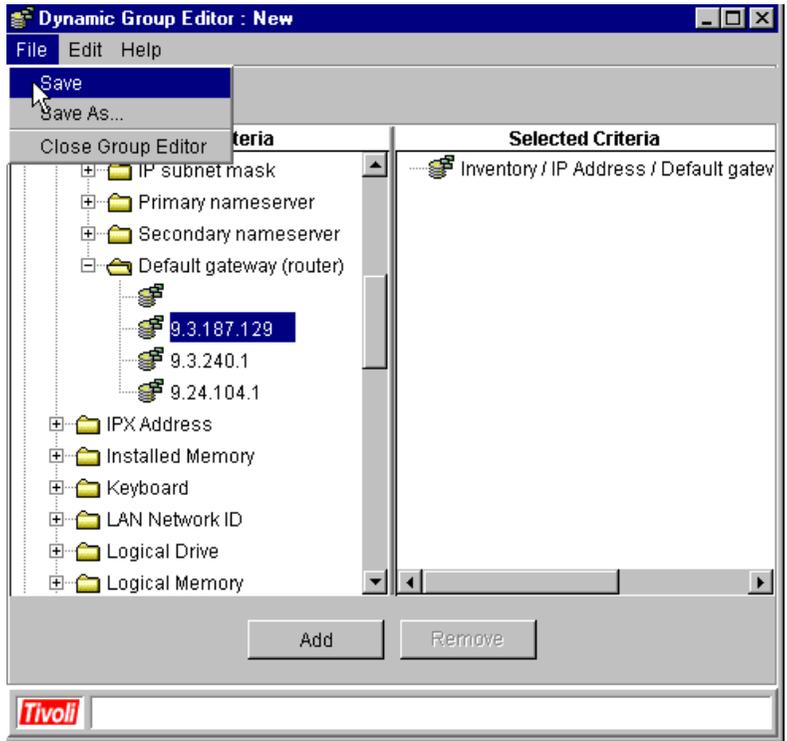
Figure 191. Another Dynamic Group for location

Now Eagle and Falcon are added to the Austin group AS/400, and Ralyas4b is added to the Raleigh group AS/400.
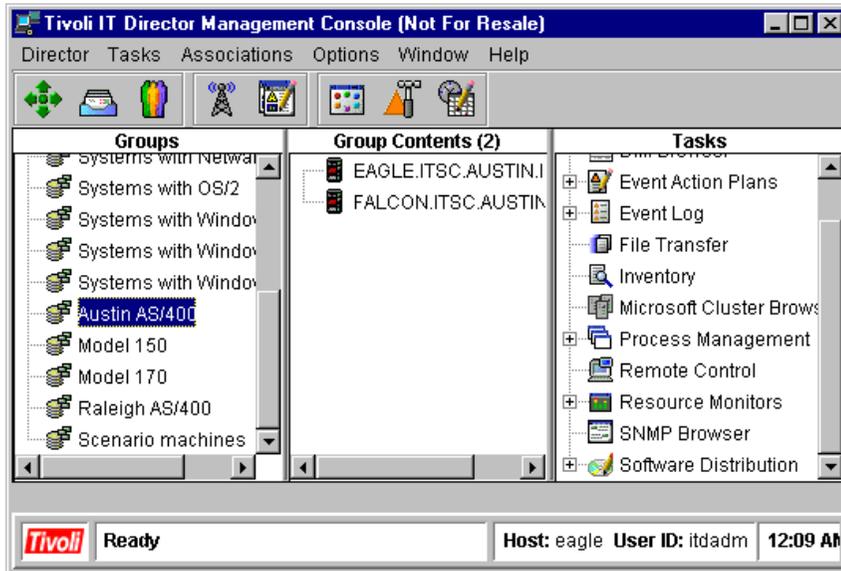
Figure 192. Dynamic group for location complete

Therefore, at present, three groups are created. In the next section, we show how to target IT Director Management Server tasks at these groups.

6.6.2 Setting tasks for each group

This section provides an example of setting tasks for each group. An outline is:

- Availability management for application group

- Other management examples

You can set a task for a group (either a default group or the group(s) created by you). It makes the whole process easy for you to manage the same kind of AS/400s. The example settings are shown in following sections.

6.6.2.1 Availability management

This section uses AS/400 subsystems for availability management.

In this example, two applications exists, Account and Personnel. Each
application uses its own subsystem, ACCO and PRES, respectively. These
subsystems should be working if you need to use applications (see Figure
193).
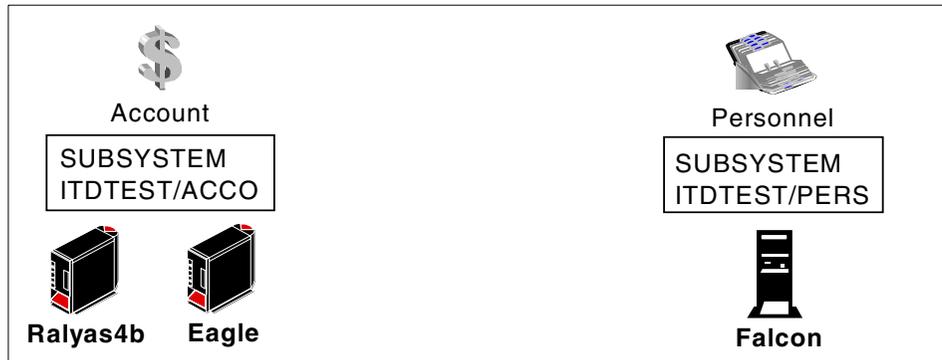
Figure 193. Sample application environment

Scenario overview

Resource monitoring task and process management task are used for this
scenario.

- Check the each subsystem status using the resource monitor.

- Create the process management tasks for each group.

- If subsystem is down, start it by using the process management task.

Resource monitor setting

The following are the procedures of the resource monitor settings:

1. First, to create resource monitor settings for the group *Account*, right-click
   on group **Account** and select **Resource Monitors**.
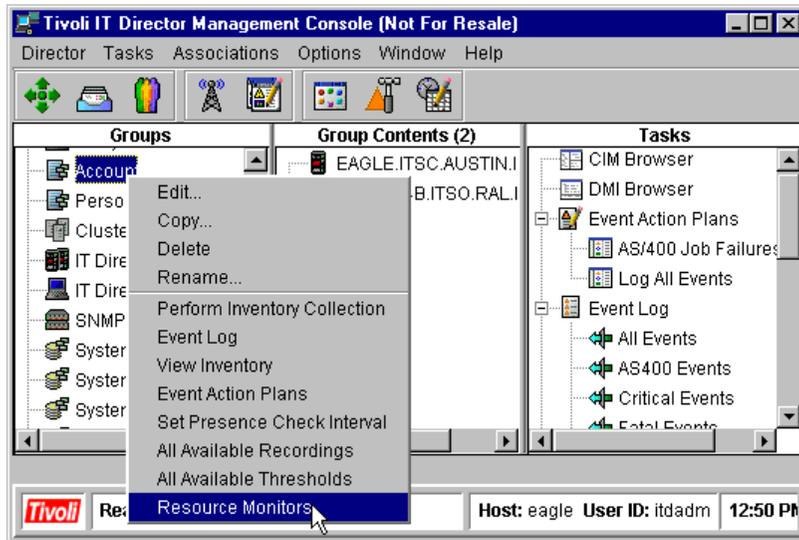
Figure 194. Create Resource Monitor

2. In the Resource Monitors window, select the Subsystem status of managed subsystem in the Available Resource pane. To do this, select **Director Agent -> AS/400 resource monitors -> Subsystems -> ITDTEST/ACCO**. This operation displays the subsystem status of Eagle and Ralyas4b.
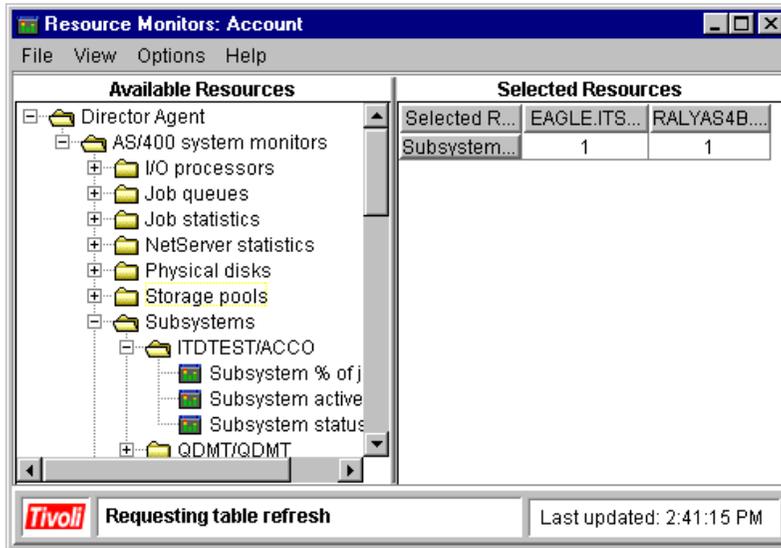
Figure 195. Select Subsystem

3. Right-click on the **Subsystem** status row, and choose **Group Threshold**.
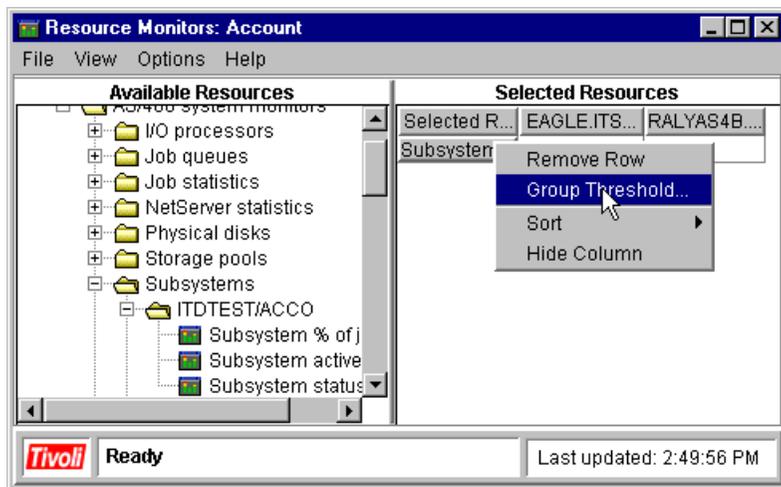
Figure 196. Create Group Threshold

4. When the *Group Threshold* window is displayed, type in a name for the
   Threshold and set Minimum Duration to 5 minutes, 5 minutes Resend
   Delay, and type 0 into the Low Error field. Then, type **OK**.

> **Note**
>
> You can change the Resend Delay value for your environment. In this example, the event is periodically generated every five minutes as long as the subsystem is down.
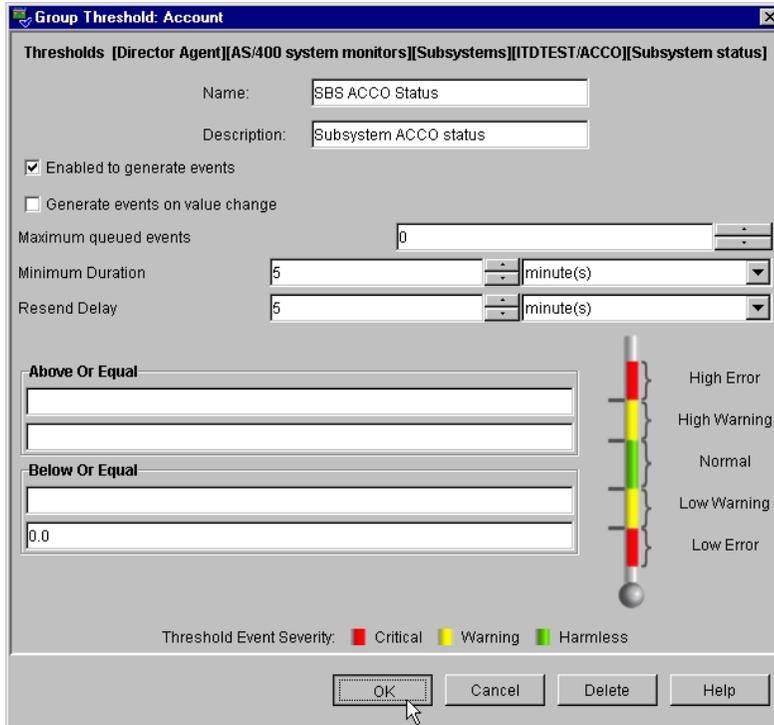
Figure 197. Group Threshold window

5. In the Resource Monitors window, select **File -> Save As** from the tool bar and type in a name for the Resource Monitor settings, then press **OK**.
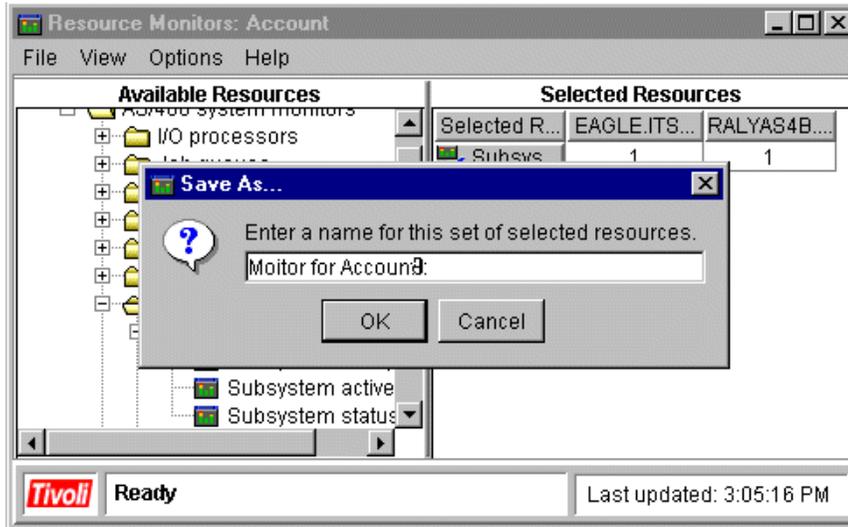
Figure 198. Save new resource monitor setting

6. Create another resource monitor setting for subsystem *PERS* for Personnel group. Refer to the settings used for the Accounting group earlier. Select **ITDTEST/PERS** instead of ITDTEST/ACCO as the monitored subsystem.
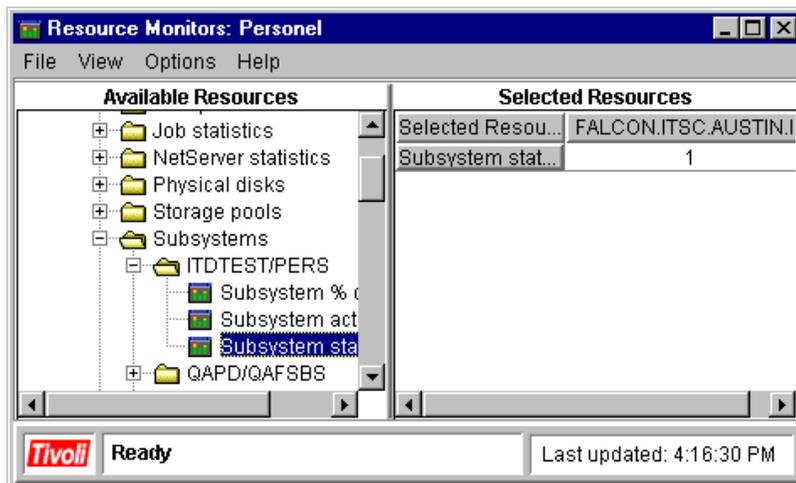
Figure 199. Resource monitor setting for PERS subsystem

7. The resource monitor settings for each group are displayed in the console.
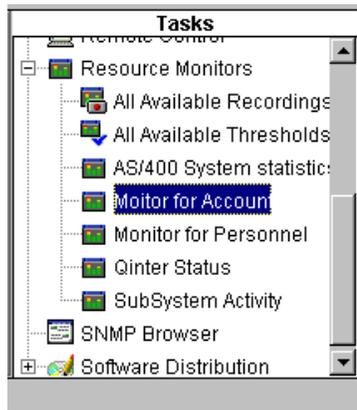
Figure 200. All resource monitor settings

Process tasks setting

Create two process tasks to start each subsystem when they are down. For detailed instructions on using process tasks, refer to Chapter 5, "Using Tivoli IT Director for AS/400" on page 63.

1. Right-click on **Process tasks** and select **Open**.
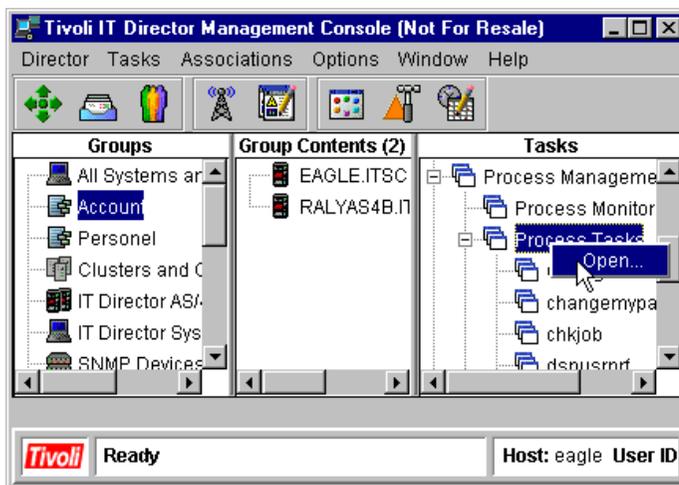
Figure 201. Create new process tasks

2. Type the in the command, SYSTEM "STRSBS ITDTEST/ACCO". This is for the group *Account*. Check the **Log** option and type in a user ID and password (we used ITDADM as the user ID).
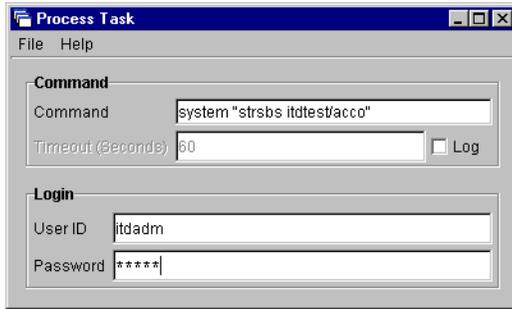
Figure 202. Process Task window

Note

In this example, common user IDs and user profile are used for executing tasks. If some AS/400s in your environment (group) do not have this user ID and password, they will not work. In this case, you need to create another task for each user ID and password.

---

3. Select **File -> Save As** from the tool bar. And, when the Save As window is displayed, type in the process tasks name, then press **OK**.
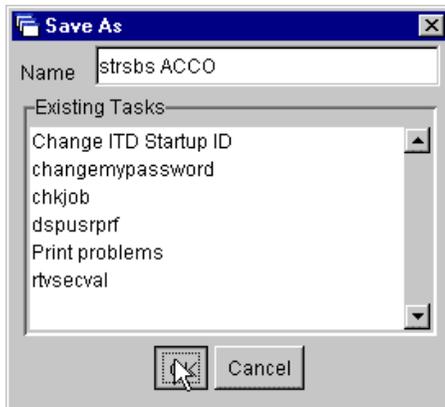
Figure 203. Save As window

4. Create another task for group Personnel by following the instructions for Accounting task. In this case, the command is SYSTEM "STRSBS ITDTEST/PERS".
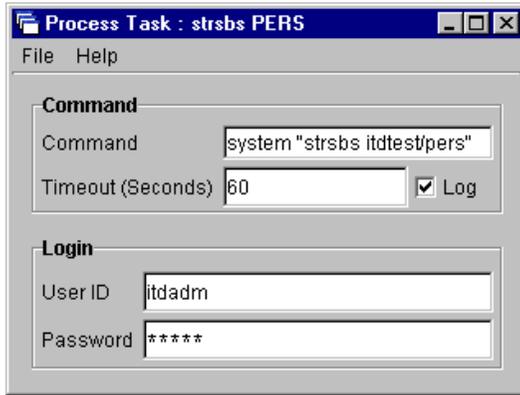
Figure 204. Process Task for Personnel

Create an event action plan

Lastly, create an event action plan and tie the tasks that you created together. For detailed information about settings of event action plan, refer to Chapter 5, "Using Tivoli IT Director for AS/400" on page 63.

1. On Event Action Plan Builder window, right-click on **Event Action Plan** and select **New**.
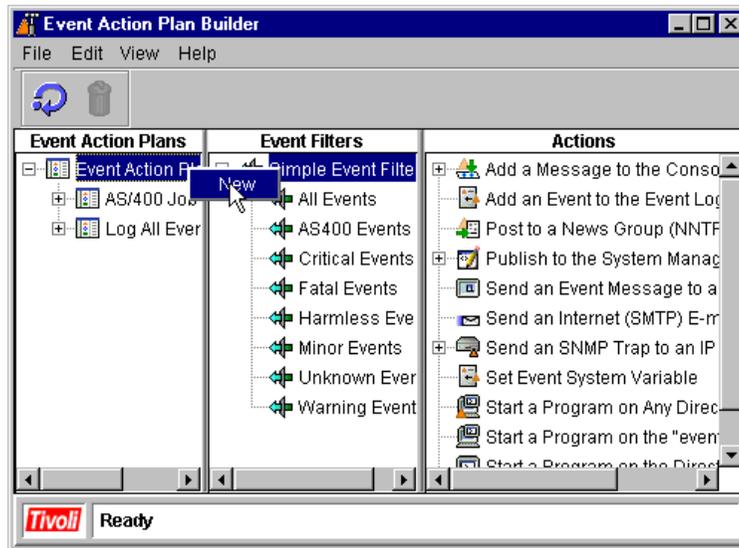
Figure 205. Event Action Plan Builder window

2. Type in the action plan name (we used Manage subsystem), then press **Enter**.
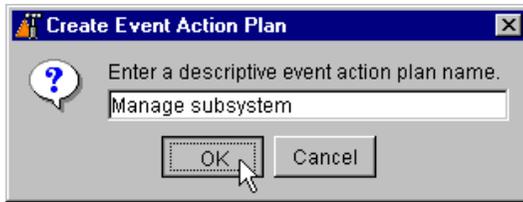
Figure 206. Setting the event action plan name

3. Create an new event filter for subsystem *ACCO*. Re-check the **Any** box in the Event Type tab and select **Director -> AS/400 system monitors -> ITDTEST/ACCO -> Subsystem status -> Low Error**.
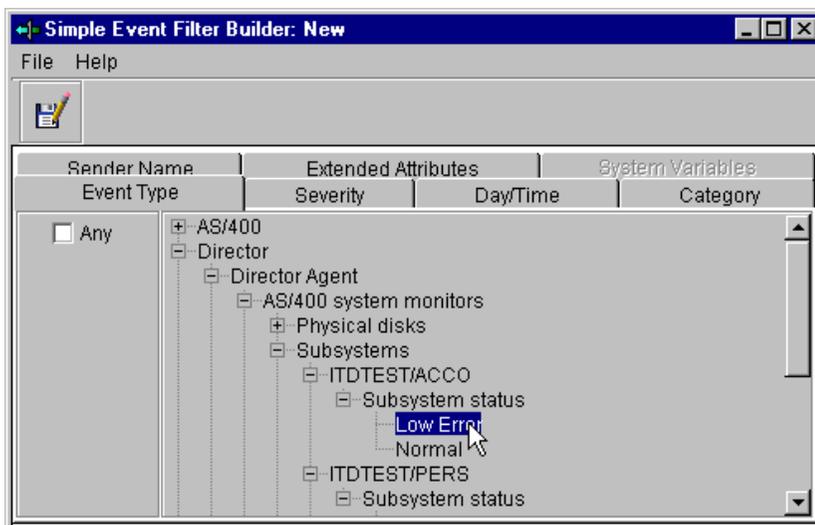
Figure 207. Create a new event filter

4. Select **File -> Save as** and enter a name for the filter (we used *sbs ACC0 filter*).

Figure 208. Save Event Filter

5. Create another event filter for subsystem PERS in the same way. For this filter, select **Director -> AS/400 system monitors -> ITDTEST/PERS -> Subsystem status -> Low Error** in the Simple Event Filter Builder window.
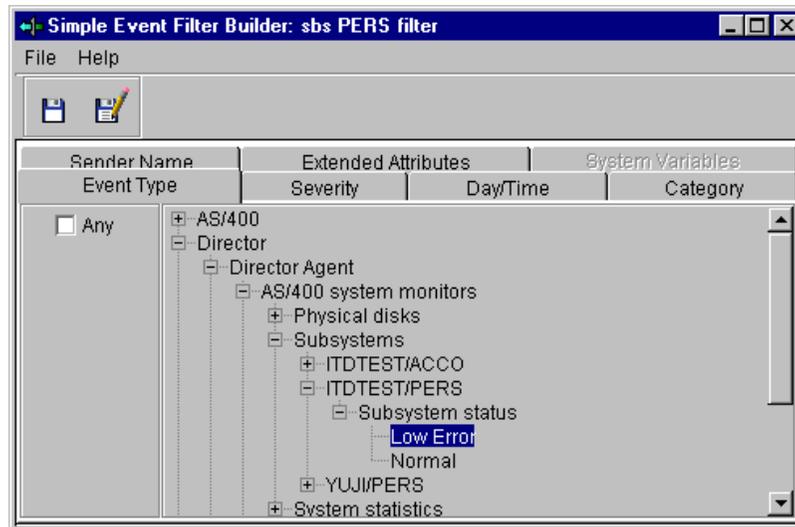
Figure 209. Event filter for subsystem PERS

6. To create an action, right-click on **Start a Task on a "event" system** in *Action* pane, then select **Customize**.
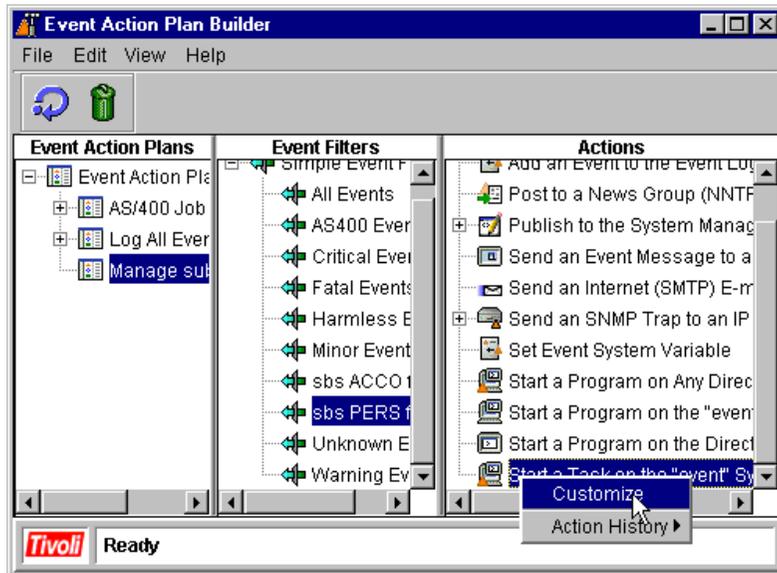
Figure 210. Create a new action

7. In the Customize Action window, select the task that you created for subsystem ACCO and save the action. Also, create another action for subsystem PERS. When both actions are created, select **Start a Task on a "event" system -> Action History -> Enable** to enable the logging for this task.
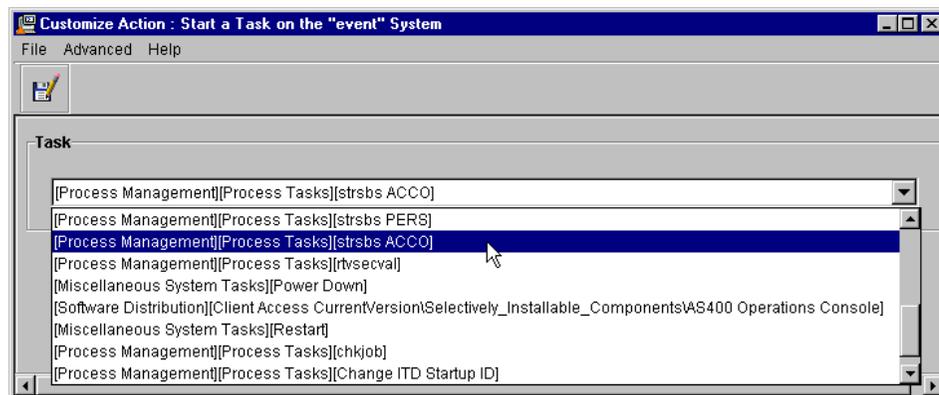
Figure 211. Select a task

8. Drag and drop the event filter onto the event action plan and then drop the action onto the filter. In this example, for subsystem ACCO, drag and drop

sbs ACCO filter (event filter) onto **Manage subsystem** (event action plan) first, then drag and drop **strsbs ACCO** (action) onto the **sbs ACCO filter** that you added in the previous process. For subsystem PERS, follow the same instructions, just substitute the ACCO task and filter for the PERS task and filter.
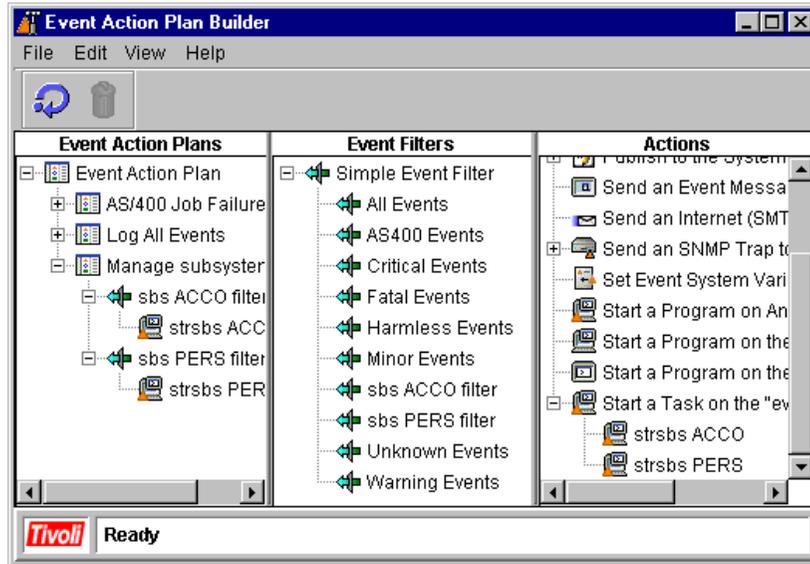
Figure 212. Event Action Plan completion

9. To add the event action plan to each group, open the Event Action Plans window (right-click on **Event Action Plans** and select **Open**). Drag and drop the event action plan that you created to each group. This event action plan is now activated.
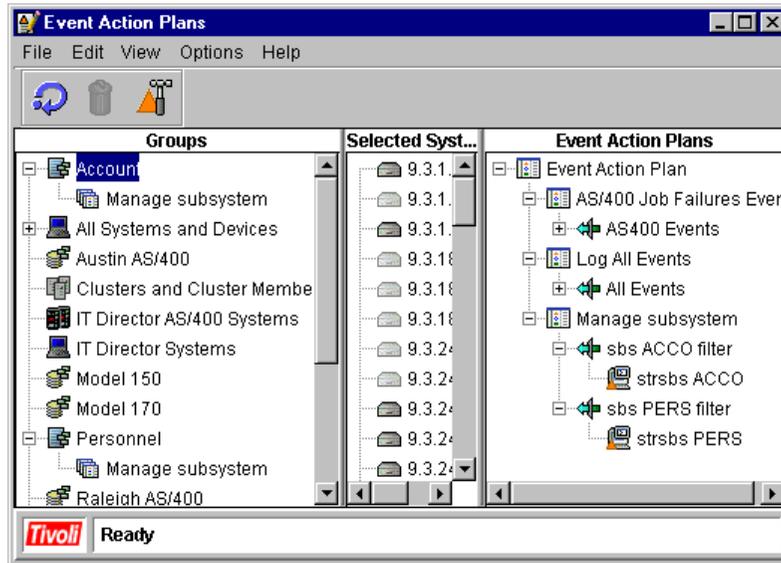
Figure 213. Event Action Plans window

Testing the Event action plans

To test the event action plan, shutdown the subsystem PERS on Falcon using the `ENDSBS PERS` command on AS/400 command line. Confirm that the PERS subsystem is not active by issuing the `WRKACTJOB` command.

```
FALCON                                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                          Work with Active Jobs                       FALCON
                                                          03/17/00  11:28:29
CPU %:    1.3       Elapsed time:   25:36:23      Active jobs:    134

Type options, press Enter.
  2=Change   3=Hold    4=End    5=Work with    6=Release    7=Display message
  8=Work with spooled files    13=Disconnect ...

Opt   Subsystem/Job   User       Type   CPU %   Function        Status
__    QBATCH          QSYS       SBS     .0                     DEQW
__    QCMN            QSYS       SBS     .0                     DEQW
__    QCTL            QSYS       SBS     .0                     DEQW
__      QSYSSCD       QPGMR      BCH     .0     PGM-QEZSCNEP    EVTW
__    QINTER          QSYS       SBS     .0                     DEQW
__      QPADEV0001    YUJI       INT     .0     CMD-WRKACTJOB   RUN
__    QSERVER         QSYS       SBS     .0                     DEQW
__      QPWFSERVSD    QUSER      BCH     .0                     SELW
__      QSERVER       QPGMR      ASJ     .0                     EVTW
                                                                  More...
Parameters or command
===> _
F3=Exit   F5=Refresh      F7=Find      F10=Restart statistics
F11=Display elapsed data  F12=Cancel   F23=More options   F24=More keys

MA█    b                                                        10/002
```

Figure 214. The WRKACTJOB command

After five minutes, the PERS subsystem should start automatically.

```
FALCON                                                                    _ □ ×
File  Edit  Transfer  Appearance  Communication  Assist  Window  Help
                          Work with Active Jobs                       FALCON
                                                          03/17/00  11:36:42
CPU %:    1.3       Elapsed time:   25:44:35      Active jobs:    135

Type options, press Enter.
  2=Change   3=Hold    4=End    5=Work with    6=Release    7=Display message
  8=Work with spooled files    13=Disconnect ...

Opt   Subsystem/Job   User       Type   CPU %   Function        Status
__    PERS            QSYS       SBS     .0                     DEQW
__    QBATCH          QSYS       SBS     .0                     DEQW
__    QCMN            QSYS       SBS     .0                     DEQW
__    QCTL            QSYS       SBS     .0                     DEQW
__      QSYSSCD       QPGMR      BCH     .0     PGM-QEZSCNEP    EVTW
__    QINTER          QSYS       SBS     .0                     DEQW
__      QPADEV0001    YUJI       INT     .0     CMD-WRKACTJOB   RUN
__    QSERVER         QSYS       SBS     .0                     DEQW
__      QPWFSERVSD    QUSER      BCH     .0                     SELW
                                                                  More...
Parameters or command
===> _
F3=Exit   F5=Refresh      F7=Find      F10=Restart statistics
F11=Display elapsed data  F12=Cancel   F23=More options   F24=More keys

MA█    b                                                        10/002
```

Figure 215. Check PERS subsystem status

You can check the action history on the *strsbs PERS* to verify that the task has executed properly. To do this, go to Event Action Plan Builder, and in the Action pane, select **Start a Task on a "event" system**, then right-click on **strsbs PERS** and select **Action History -> Show**.
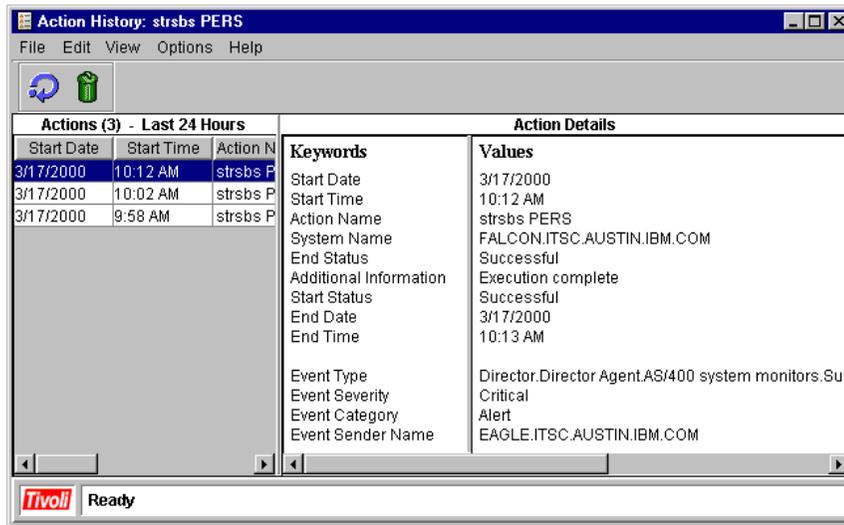

Figure 216. Action History window

6.6.2.2 Other management examples
This section provides examples for other management methods using groups.

Resource monitor for model group
First, create a resource monitoring task for each model group (model 150 and 170 machines). Then, set the *CPU Utilization %* (found under System Statistics) threshold for High error to 80 (percent) for the model 150 group and 90 (percent) for the model 170 group. You can set different thresholds for each group. This is convenient if you want to use the same event action plan for different models (see Figure 217 on page 217).
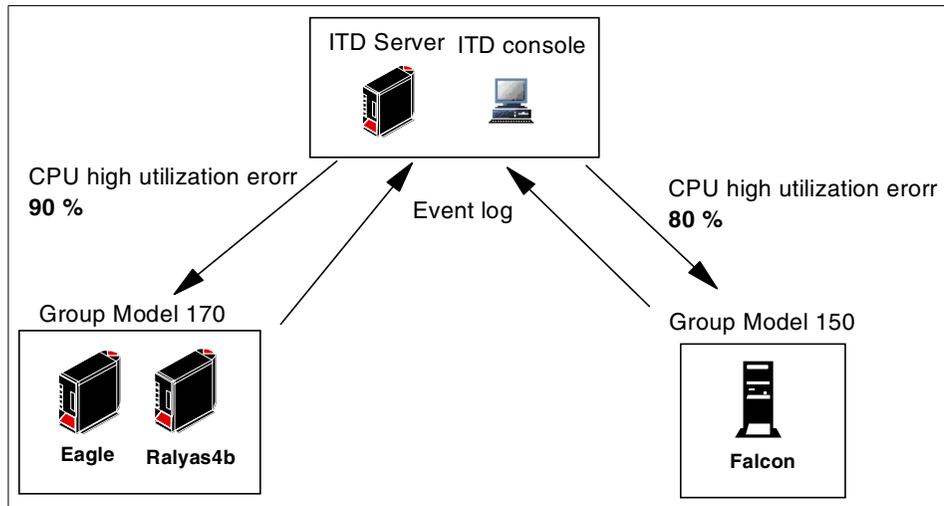
Figure 217. Resource monitor for model group

Schedule task for location group

This example is effective if your environment has a special event (for example, a blackout). You can manage each location from the Tivoli IT Director Management Console.

For example if one location has a planned blackout, you can schedule to shutdown and restart AS/400 on Tivoli IT Director Management Console by using the `CHGPWRSCDE` command. If you use AS/400 native job scheduler, you need to set schedule for each machine individually

Inventory for Version Release group

In this sample environment, only the OS/400 V4R4 machine exists. Tivoli Management Agent is also available for OS/400 V4R3. If you have an OS/400 V4R3 machine, you can create group for each OS/400 version release. Then, you can check the inventory of software and cumulative PTF levels, and so on, for each group.

Appendix A. AS/400 Agent installation sample program

The following shows the sample program that installs the remote IT Director agent.

```
PGM         PARM(&ITDUSER &SAVFILE)
DCL &SAVFILE *CHAR 10      /* Name of Save File */
DCL &MSGUSRTXT *CHAR 132   /* Msg text to user */
DCL &USER *CHAR 10         /* User */
DCL &USRCLS *CHAR 10       /* User Class */
DCL &ITDUSER *CHAR 10      /* IT Director user for ITD Attributes */
DCL &ERRORSW TYPE(*LGL)
DCL &MSGID *CHAR 7               /*Specifies the message identifier*/
DCL &MSGDTA *CHAR 132           /* 1 st Level message text */
DCL &MSGF *CHAR 10              /* Name of the Msg File */
DCL &MSGFLIB *CHAR 10           /* Name of the Msg file Library */
DCL &MSGLEN *DEC  LEN(5 0)    /* total length of the message */
  /* =============== Standard Error Handling ==================*/
MONMSG MSGID(CPF0000) EXEC(GOTO CMDLBL(ERROR))
  /* =============== Retreive User Job Informations ============*/
          RTVJOBA    USER(&USER)
          RTVUSRPRF  USRCLS(&USRCLS)
  /* =============== Check user class Informations ============*/
 CHKAUT:    IF        COND(&USRCLS *NE '*SECOFR') THEN(SNDPGMMSG +
                      MSGID(CPF9898) MSGF(QCPFMSG) MSGDTA(' +
                       *SECOFR Authority is mandatory for this +
                       program') TOPGMQ(*PRV) MSGTYPE(*ESCAPE))
  /* =============== Restore Licensed Product  =============*/
RSTLIC:
          RSTLICPGM  LICPGM(1ITDAGT) DEV(*SAVF) SAVF(&SAVFILE)
          CHGVAR     VAR(&MSGUSRTXT) VALUE('RESTORE MSG ')
          SNDPGMMSG  MSGID(CPF9898) MSGF(QCPFMSG) +
                     MSGDTA(&MSGUSRTXT) TOPGMQ(*EXT) +
                     MSGTYPE(*STATUS)

  /* ============ Create User profile for ITD Attributes==========*/
CRTUSERITD:
        CRTUSRPRF  USRPRF(&ITDUSER) PASSWORD(MYPWD) +
            USRCLS(*SECOFR) INLMNU(*SIGNOFF) TEXT('IT +
            DIRECTOR USER   DO NOT DELETE')
  /* ============  Change IT Director Attributes  =============*/
 CHGITDATR:
            CHGITDAGTA PROFILE(&ITDUSER)
  /* ============  Change IT Director Agent Authoriztion list ====*/
 CHGAUTL:
            ADDAUTLE   AUTL(TIVITAGT) USER(&ITDUSER) AUT(*CHANGE)
 ERROR: +
     IF COND(&ERRORSW) THEN(SNDPGMMSG MSGID(CPF9999) MSGF(QCPFMSG) +
MSGTYPE(*ESCAPE))
     CHGVAR VAR(&ERRORSW) VALUE('1')
     RCVMSG MSGTYPE(*EXCP) MSGDTA(&MSGDTA) MSGID(&MSGID) MSGF(&MSGF) +
MSGFLIB(&MSGFLIB)
     IF COND(&MSGID *NE ' ') THEN(DO)
     SNDPGMMSG MSGID(&MSGID) MSGF(&MSGFLIB/&MSGF) MSGDTA(&MSGDTA) +
TOPGMQ(*PRV) MSGTYPE(*ESCAPE)

     ENDDO
     ENDPGM
```

Appendix B. Special notices

This publication is intended to help system designers and technical users of Tivoli products to understand more about Tivoli IT Director for AS/400 and how to manage AS/400 systems with Tivoli IT Director. The information in this publication is not intended as the specification of any programming interfaces that are provided by Tivoli. See the PUBLICATIONS section of the IBM Programming Announcement for Tivoli for more information about what publications are considered to be product documentation.

References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent program that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program or service.

Information in this book was developed in conjunction with use of the equipment specified, and is limited in application to those specific hardware and software products and levels.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, North Castle Drive, Armonk, NY 10504-1785.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact IBM Corporation, Dept. 600A, Mail Drop 1329, Somers, NY 10589 USA.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The information contained in this document has not been submitted to any formal IBM test and is distributed AS IS. The use of this information or the implementation of any of these techniques is a customer responsibility and depends on the customer's ability to evaluate and integrate them into the customer's operational environment. While each item may have been reviewed by IBM for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere. Customers

attempting to adapt these techniques to their own environments do so at their own risk.

Any pointers in this publication to external Web sites are provided for convenience only and do not in any manner serve as an endorsement of these Web sites.

The following terms are trademarks of the International Business Machines Corporation in the United States and/or other countries:

AIX	AS/400
DB2	DB2 Universal Database
IBM	Netfinity
OS/2	OS/400
SP	Wizard

The following terms are trademarks of other companies:

Tivoli, Manage. Anything. Anywhere.,The Power To Manage., Anything. Anywhere.,TME, NetView, Cross-Site, Tivoli Ready, Tivoli Certified, Planet Tivoli, and Tivoli Enterprise are trademarks or registered trademarks of Tivoli Systems Inc., an IBM company, in the United States, other countries, or both. In Denmark, Tivoli is a trademark licensed from Kjøbenhavns Sommer - Tivoli A/S.

C-bus is a trademark of Corollary, Inc. in the United States and/or other countries.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and/or other countries.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States and/or other countries.

PC Direct is a trademark of Ziff Communications Company in the United States and/or other countries and is used by IBM Corporation under license.

ActionMedia, LANDesk, MMX, Pentium and ProShare are trademarks of Intel Corporation in the United States and/or other countries.

UNIX is a registered trademark in the United States and other countries licensed exclusively through The Open Group.

SET, SET Secure Electronic Transaction, and the SET Logo are trademarks

owned by SET Secure Electronic Transaction LLC.

Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation.

Domino is a trademark of Lotus Development Corporation.

Other company, product, and service names may be trademarks or service marks of others.

Appendix C. Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

C.1 IBM Redbooks

For information on ordering these publications see "How to get IBM Redbooks" on page 229.

- *All About Tivoli Management Agents*, SG24-5134
- *AS/400 - Implementing Windows NT on the Integrated Netfinity Server*, SG24-2164
- *Integration Examples for Tivoli IT Director: A First Look*, SG24-5207
- *Managing AS/400 with Tivoli Enterprise*, SG24-5517
- *Software Distribution with Tivoli IT Director*, SG24-5493
- *The AS/400 NetServer Advantage*, SG24-5196
- *Tivoli IT Director Automation*, SG24-5295

C.2 IBM Redbooks collections

Redbooks are also available on the following CD-ROMs. Click the CD-ROMs button at **ibm.com**/redbooks for information about all the CD-ROMs offered, updates and formats.

CD-ROM Title	Collection Kit Number
System/390 Redbooks Collection	SK2T-2177
Networking and Systems Management Redbooks Collection	SK2T-6022
Transaction Processing and Data Management Redbooks Collection	SK2T-8038
Lotus Redbooks Collection	SK2T-8039
Tivoli Redbooks Collection	SK2T-8044
AS/400 Redbooks Collection	SK2T-2849
Netfinity Hardware and Software Redbooks Collection	SK2T-8046
RS/6000 Redbooks Collection (BkMgr)	SK2T-8040
RS/6000 Redbooks Collection (PDF Format)	SK2T-8043
Application Development Redbooks Collection	SK2T-8037
IBM Enterprise Storage and Systems Management Solutions	SK3T-3694

C.3 Other resources

These publications are also relevant as further information sources:

- *AS/400 Alerts Support V4R1*, SC41-5413
- *AS/400 CL Reference V4R4*, SC41-5722
- *AS/400 Programming Reference Summary V4R4*, SX41-5720
- *AS/400 Security - Basic V4R5*, SC41-5301
- *AS/400 System Operation V3.6.0*, SC41-4203
- *Basic System Operation, Administration and Problem Handling*, SC41-5206
- *CL Programming V4R4*, SC41-5721
- *Communications Configuration V4R1*, SC41-5401
- *HTTP Server Webmaster's Guide V4R4*, GC41-5434
- *OS/400 Backup and Recovery V4R4*, SC41-5304
- *OS/400 Security - Reference*, SC41-5302
- *OS/400 Work Management*, SC41-5306
- *Simple Network Management Protocol (SNMP) Support V4R1*, SC41-5412
- *TCP/IP Configuration and Reference*, SC41-5420

The following is product documentation:

- *Tivoli IT Director User's Guide*

C.4 Referenced Web sites

These Web sites are also relevant as further information sources:

- http://www.as400.ibm.com
- http://www.redbooks.ibm.com
- http://www.redbooks.ibm.com/abstracts/sg245196.html
- http://www.redbooks.ibm.com/abstracts/sg245207.html
- http://www.redbooks.ibm.com/abstracts/sg245295.html
- http://www.tivoli.com
- http://www.tivoli.com/products/index/it-director

- http://www.tivoli.com/products/index/it-director_netview/index.html

How to get IBM Redbooks

This section explains how both customers and IBM employees can find out about IBM Redbooks, redpieces, and CD-ROMs. A form for ordering books and CD-ROMs by fax or e-mail is also provided.

- **Redbooks Web Site** `ibm.com`/redbooks

  Search for, view, download, or order hardcopy/CD-ROM Redbooks from the Redbooks Web site. Also read redpieces and download additional materials (code samples or diskette/CD-ROM images) from this Redbooks site.

  Redpieces are Redbooks in progress; not all Redbooks become redpieces and sometimes just a few chapters will be published this way. The intent is to get the information out much quicker than the formal publishing process allows.

- **E-mail Orders**

  Send orders by e-mail including information from the IBM Redbooks fax order form to:

	e-mail address
In United States or Canada	pubscan@us.ibm.com
Outside North America	Contact information is in the "How to Order" section at this site: http://www.elink.ibmlink.ibm.com/pbl/pbl

- **Telephone Orders**

United States (toll free)	1-800-879-2755
Canada (toll free)	1-800-IBM-4YOU
Outside North America	Country coordinator phone number is in the "How to Order" section at this site: http://www.elink.ibmlink.ibm.com/pbl/pbl

- **Fax Orders**

United States (toll free)	1-800-445-9269
Canada	1-403-267-4455
Outside North America	Fax phone number is in the "How to Order" section at this site: http://www.elink.ibmlink.ibm.com/pbl/pbl

This information was current at the time of publication, but is continually subject to change. The latest information may be found at the Redbooks Web site.

IBM Intranet for Employees

IBM employees may register for information on workshops, residencies, and Redbooks by accessing the IBM Intranet Web site at http://w3.itso.ibm.com/ and clicking the ITSO Mailing List button. Look in the Materials repository for workshops, presentations, papers, and Web pages developed and written by the ITSO technical professionals; click the Additional Materials button. Employees may access MyNews at http://w3.ibm.com/ for redbook, residency, and workshop announcements.

IBM Redbooks fax order form

Please send me the following:

Title	Order Number	Quantity

First name _____ Last name _____

Company _____

Address _____

City _____ Postal code _____ Country _____

Telephone number _____ Telefax number _____ VAT number _____

☐ Invoice to customer number _____

☐ Credit card number _____

Credit card expiration date _____ Card issued to _____ Signature _____

We accept American Express, Diners, Eurocard, Master Card, and Visa. Payment by credit card not available in all countries. Signature mandatory for credit card payment.

Abbreviations and acronyms

AIX	Advanced Interactive Executive		**MIB**	Management Information Base
AMP	Application Management Package		**MIF**	Management Information File
AMS	Application Management Specification		**MSCS**	Microsoft Clustering Service
BARC	Before After Remove Commit Script		**RDBMS**	Relational Database Management System
CIM	Common Information Model		**SNMP**	Simple Network Management Protocol
CLI	Command Line Interface		**TAP**	Tivoli Authentication Package
DB2	Database 2		**TCP/IP**	Transmission Control Protocol/Internet Protocol
DLL	Dynamic Link Library			
DMI	Desktop Management Interface		**TEC**	Tivoli Enterprise Console
DNS	Domain Name Service		**TMA**	Tivoli Management Agent
FTP	File Transfer Protocol		**TME**	Tivoli Management Environment
GUI	Graphical User Interface		**TMF**	Tivoli Management Framework
IBM	International Business Machines		**TMR**	Tivoli Management Region
IFS	Integrated File System		**TNR**	Tivoli Name Registry
INS	Integrated Nefinity Server			
IPCS	Integrated Personal Computer Server			
IPX	Internet Packet Exchange			
IT	Information Technology			
ITSO	International Technical Support Organization			
LCF	Lightweight Client Framework			
MDist	Multiplexed Distribution			

Index

Symbols
.CSV format 75
.HTM format 75

A
account application 202
action 93, 211
action history 216
active job 155
actual directory 141
administrator 2, 148, 160, 166, 182
administrator account name 55
administrators group 182
Adobe Acrobat Reader 10
alert 10
AMP 10
application 10, 190
application group 201
AS/400 1, 5, 7, 147
AS/400 Client Access 24, 37
AS/400 Client Access Express for Windows 24, 37, 104
AS/400 Client Access for Windows 95/NT 24, 37
AS/400 Client Access plug-in 38
AS/400 event message 98
AS/400 NetServer 175, 181, 185
AS/400 system availability 202
AS/400 system value 36, 54
AS/400 systems management 5
attribute 32, 88
authorization list 34
automated process 129
availability management 190, 201
available query 67

B
bandwidth 159
batch file 175
batch job 81, 97, 99, 155, 202
browser software 75
business computing system 5

C
calendar 133

CD-ROM 3, 7, 28, 41, 105
centralized management 5
CL command 97
CL program 95, 149, 156
class ID 148
command 122, 130
command line 36
command prompt screen 48
communications adapter 64
computer system 5
configuration 27
connection 12
console security 35
CPU type 64
CPU utilization 76, 80

D
database support 6
DB2 6
default gateway 170, 199
default query 68
default user profile 162, 171
desktop machine 21
device 29, 41, 191
director support program 173
directory 29, 41, 176, 184
discovered node 63
disk space 13, 76
disk type 64
diskette 165
distributed computer system 5
distributed systems 11
DMI management 21
DNS 36
domain administrator 174
domain administrators group 164
download 8
DP department 3
drag-and-drop 6
dynamic group 191

E
event 10, 90, 95, 128, 129, 155
event action plan 77, 90, 209, 216
Event Action Plan Builder 92
event filter 90, 93, 210

233

Lotus Domino   10

Tivoli for AS/400 endpoints   42
Tivoli IT Director   1, 4
Tivoli NetView IT Director Edition   119
TWGSHARE.EXE   165, 173

U
uninstall process   57
user   81, 155
user ID   14, 39, 49, 56, 130, 148, 149, 173, 182,
207
user management   160
user profile   14, 16, 28, 32, 57, 59, 61, 119, 123,
141, 149, 153, 161, 171, 176, 184

V
vendor name   64
version   64
virtual directory   141

W
WAN   102, 159
WAN bandwidth   102
Web browser   137
Web site   14, 24, 77, 81, 98, 109
Web Site Builder   81, 144
Web table   83
welcome page   145
Windows   7
Windows 3.1   109
Windows 95   15, 37
Windows 98   15, 37
Windows NT   1, 6, 7, 15, 37, 147, 160, 171
Windows NT domain   161
Windows NT Explorer   187

IBM Redbooks review

Your feedback is valued by the Redbook authors. In particular we are interested in situations where a Redbook "made the difference" in a task or problem you encountered. Using one of the following methods, **please review the Redbook, addressing value, subject matter, structure, depth and quality as appropriate.**

- Use the online **Contact us** review redbook form found at **ibm.com**/redbooks
- Fax this form to: USA International Access Code + 1 914 432 8264
- Send your comments in an Internet note to redbook@us.ibm.com

Document Number **Redbook Title**	SG24-6003-00 Managing AS/400 with Tivoli IT Director
Review	
What other subjects would you like to see IBM Redbooks address?	
Please rate your overall satisfaction:	O Very Good O Good O Average O Poor
Please identify yourself as belonging to one of the following groups:	O Customer O Business Partner O Solution Developer O IBM, Lotus or Tivoli Employee O None of the above
Your email address: The data you provide here may be used to provide you with information from IBM or our business partners about our products, services or activities.	 O Please do not use the information collected here for future marketing or promotional contacts or other communications beyond the scope of this transaction.
Questions about IBM's privacy policy?	The following link explains how we protect your personal information. **ibm.com**/privacy/yourprivacy/

IBM

Redbooks

Managing AS/400 with Tivoli IT Director

IBM

IBM ®

Managing AS/400 with Tivoli IT Director

Redbooks

A comprehensive management tool for the AS/400 environment

Integrated application management

Practical, step-by-step scenarios and examples

With Version 2.11 of Tivoli IT Director, a highly-integrated systems management tool, you can now extend your Tivoli solutions to the AS/400 platform. This IBM Redbook provides detailed information and a comprehensive outline for all aspects of the implementation, operation, and maintenance of this Tivoli management solution.

This IBM Redbook will be a primary source of information for all stages of deploying Tivoli's IT Director for the AS/400. Documentation and examples of the implementation techniques related to managing AS/400s with Tivoli IT Director are covered, including "getting started" examples, as well as more complex examples of the use of Tivoli IT Director that are applicable to the AS/400. By providing detailed, step-by-step examples, this book enables you to quickly gain control of your IT environment.

With its in-depth product coverage and detailed implementation examples, this book will benefit sales and service professionals, business partners, and customers, enhancing your Tivoli IT Director design.