Tivoli® IBM Tivoli Configuration Manager

Version 4.3.1

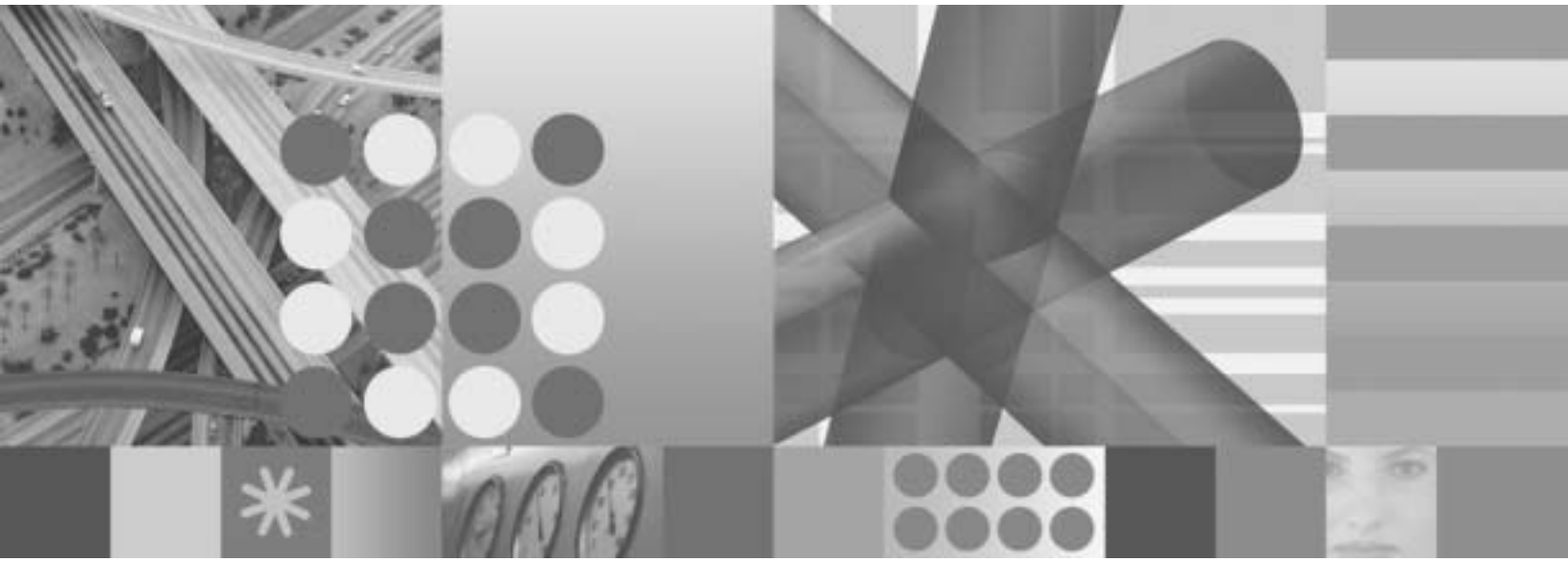
Introducing IBM Tivoli Configuration Manager

GC23-4703-03

Tivoli® IBM Tivoli Configuration Manager

IBM

Version 4.3.1



Introducing IBM Tivoli Configuration Manager

GC23-4703-03

Note

Before using this information and the product it supports, read the information in “Notices” on page 49.

This edition applies to version 4, release 3, modification level 1 of IBM Tivoli Configuration Manager (program number 5724-C06) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces GC23-4703-02.

Contents

Figures

About this guide

IBM® Tivoli® Configuration Manager version 4.3.1 provides remote system management facilities for your enterprise. *Introducing IBM Tivoli Configuration Manager* provides an overview of this product and a series of scenarios that introduce you to the tasks you can perform.

Who should read this guide

This guide is intended for:

- Network operations managers and their technical advisors who are evaluating the product or planning their software distribution and management environment
- Individuals who require general information for evaluating, installing, or using the product

What this guide contains

This guide contains the following sections:

- Chapter 1, “Overview”

  Provides an overview of the Tivoli Configuration Manager suite and its relationship with Tivoli Management Framework.
- Chapter 2, “Scenario: Distributing software”

  Shows how to distribute software.
- Chapter 3, “Scenario: Scanning for hardware and software”

  Discusses how to perform inventory scans.
- Chapter 4, “Scenario: Automating software distribution and inventory scans”

  Describes how to automate the software distribution and inventory process.
- Chapter 5, “Scenario: Managing the network using reference models”

  Describes how to use reference models to manage the network.
- Chapter 6, “Scenario: Managing a network with firewalls”

  Describes how to distribute software across firewalls.
- Chapter 7, “Scenario: Device management”

  Describes how to managing Pervasive Devices.
- Chapter 8, “Scenario: Administering the Web Interface”

  Describes how to set-up the Web Interface and maintain it.
- Chapter 9, “Scenario: Providing automated patch management”

  Describes a scenario that covers the distribution and management of security patches and software updates in a Tivoli environment.

Publications

This section lists publications in the IBM Tivoli Configuration Manager library and any other related documents. It also describes how to access Tivoli publications online and how to order Tivoli publications.

IBM Tivoli Configuration Manager library

The following documents are available in the IBM Tivoli Configuration Manager library:

- *IBM Tivoli Configuration Manager: Introducing IBM Tivoli Configuration Manager*, GC23-4703

  This book.

- *IBM Tivoli Configuration Manager: Planning and Installation*, GC23-4702

  Describes how to plan for installing Tivoli Configuration Manager components and how to perform the installation.

- *IBM Tivoli Configuration Manager: User's Guide for Software Distribution*, SC23-4711

  Provides user information about how to use the Software Distribution component of Tivoli Configuration Manager.

- *IBM Tivoli Configuration Manager: Reference Manual for Software Distribution*, SC23-4712

  Provides advanced information about how to use and customize the Software Distribution component of Tivoli Configuration Manager.

- *IBM Tivoli Configuration Manager: User's Guide for Inventory*, SC23-4713

  Provides information about how to use the Inventory component of Tivoli Configuration Manager.

- *IBM Tivoli Configuration Manager: User's Guide for Deployment Services*, SC23-4710

  Provides information about the different services provided as part of Tivoli Configuration Manager.

- *IBM Tivoli Configuration Manager: Database Schema Reference*, SC23-4783

  Provides information about the configuration repository of Tivoli Configuration Manager.

- *IBM Tivoli Configuration Manager: Messages and Codes*, SC23-4706

  Describes the messages issued by Tivoli Configuration Manager, its components, and its services.

- *IBM Tivoli Configuration Manager: Release Notes*, GI11-0926

  Provides late-breaking information about Tivoli Configuration Manager, its components, and its services.

- *IBM Tivoli Configuration Manager: Patch Management Guide*, SC23-5263

  Describes a solution that covers the distribution and management of security patches and software updates in a Tivoli environment.

- *IBM Tivoli Configuration Manager: Guide for Active Directory Integration*, SC32-2285

  Describes the integration of Microsoft Active Directory with your Tivoli environment.

- *IBM Tivoli Configuration Manager: License Management Extension*, SC32-2260

  Describes the license management facilities provided in your Configuration Manager environment.

- *IBM Tivoli Configuration Manager: User's Guide for Operating System Deployment Solution*, SC32-2578

  Describes how you can implement an operating system deployment solution delivered with Configuration Manager.

Prerequisite publications

To use the information in this guide effectively, you must have some prerequisite knowledge, which you can obtain from the following guides:

- *Tivoli Management Framework: Planning for Deployment Guide*, GC32-0803

  Explains how to plan for deploying your Tivoli environment. It also describes Tivoli Management Framework and its services.
- *IBM Tivoli Enterprise Console: Installation Guide*, GC32-0804

  Explains how to install and upgrade Tivoli Enterprise™ software within your Tivoli region using the available installation mechanisms provided by Tivoli Software Installation Service and Tivoli Management Framework. Tivoli Enterprise software includes the Tivoli management region server (Tivoli server), managed nodes, gateways, endpoints, and RIM objects. This guide also provides information about troubleshooting installation problems.
- *Tivoli Management Framework: Reference Manual*, GC32-0806

  Provides in-depth information about Tivoli Management Framework commands. This manual is helpful when writing scripts that are later run as Tivoli tasks. This manual also documents default and validation policy scripts used by Tivoli Management Framework.
- *http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm*

  Describes the latest installation information, including supported platforms, defects, and limitation for Tivoli Management Framework.

Related Publications

The following documents also provide useful information:

- *Tivoli Management Framework: Planning for Deployment Guide*, GC32-0803

  Explains how to plan for deploying your Tivoli environment.
- *Tivoli Management Framework: User's Guide*, GC32-0805

  Describes the concepts and procedures for using Tivoli Management Framework services.
- *Tivoli Management Framework: Reference Manual*, GC32-0806

  Provides in-depth information about Tivoli Management Framework commands.

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The*Tivoli Software Glossary* is available at the following Tivoli software library Web site:

http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm

Accessing publications online

The documentation CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both. Refer to the readme file on the CD for instructions on how to access the documentation.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the Tivoli software information center by first going to the Tivoli software library at the following Web address:

http://www.ibm.com/software/tivoli/library/

Scroll down and click the **Product manuals** link. In the Tivoli Technical Product Documents Alphabetical Listing window, click the **IBM Tivoli Configuration Manager** link to access the product library at the Tivoli software information center.

Note: If you print PDF documents on other than letter-sized paper, set the option in the **File → Print** window that allows Adobe Reader to print letter-sized pages on your local paper.

Ordering publications

You can order many Tivoli publications online at the following Web site:

http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, see the following Web site for a list of telephone numbers:

http://www.ibm.com/software/tivoli/order-lit/

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For additional information, see Appendix A, “Accessibility,” on page 43.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

http://www.ibm.com/software/tivoli/education

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

- Searching knowledge bases: You can search across a large collection of known problems and workarounds, Technotes, and other information.
- Obtaining fixes: You can locate the latest fixes that are already available for your product.
- Contacting IBM Software Support: If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.

For more information about these three ways of resolving problems, see Appendix B, “Support information,” on page 45.

Conventions used in this book

This guide uses several conventions for special terms and actions, operating system-dependent commands and paths, and margin graphics.

Typeface Conventions

This guide uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations:**)
- Keywords and parameters in text

Italic

- Words defined in text
- Emphasis of words (words as words)
- New terms in text (except in a definition list)
- Variables and values you must provide

`Monospace`

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

Chapter 1. Overview

IBM Tivoli Configuration Manager controls software distribution and asset management inventory in a multi-platform environment. It is designed for configuration, distribution, change, version, and asset management in a distributed computing environment. Working on top of Tivoli Management Framework, Tivoli Configuration Manager provides an integrated solution for managing complex distributed enterprise environments.

Using Tivoli Configuration Manager, you can:

- Package software elements ready for distribution and installation
- Use the integrated inventory database to determine targets for your software distribution
- Create a workflow for the installation process using the activity planner
- Submit and monitor the workflows across the enterprise
- Update the reference model to ensure continued compliance
- Manage your enterprise environment across firewalls without impacting your enterprise security
- Extend the scope of your managed network to include pervasive devices, such as personal digital assistants (PDAs) and intelligent phones
- Automatically distribute and manage security patches and software updates in a Tivoli environment. For more information about the patch management solution, see *IBM Tivoli Configuration Manager: Patch Management Guide.*

Tivoli Management Framework

Tivoli Management Framework is the software infrastructure for Tivoli Configuration Manager and provides various resources and services used by Tivoli Configuration Manager.

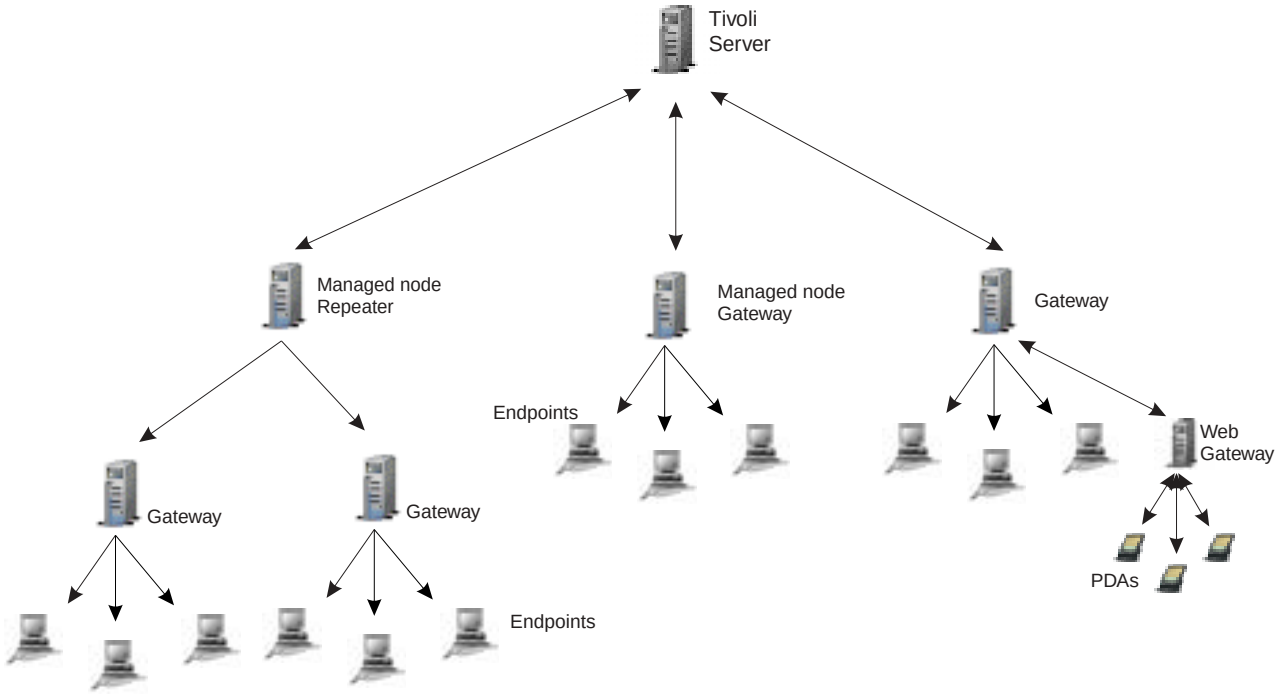


Figure 1. Example of a Tivoli Management Framework

The following resources make up a typical Tivoli environment:

Tivoli server
The server for a specific Tivoli management region (Tivoli region) that holds or references the complete set of Tivoli software, including the full object database.

Tivoli management region
In a Tivoli environment, a Tivoli server and the set of clients that it serves. An organization can have more than one region.

Managed node
A machine on which Tivoli Management Framework is installed.

Endpoint
The final recipient of any type of Tivoli operation.

Gateway
Software that provides communications services between endpoints and the rest of the Tivoli environment. The gateway is a managed node.

Repeater
A managed node or gateway that caches and transmits data through a repeater hierarchy to designated targets. Repeaters are used for multiplexed distribution and collection operations. The repeater is a managed node.

The following are the key components used in the Tivoli environment:

Administrator
An administrator manages one or more policy regions in the Tivoli environment. Tivoli administrators can perform system management tasks and manage policy regions in one or more networks.

Task library
A container in which an administrator can create and store tasks and jobs.

Task
An action that needs to be performed routinely on various managed resources in the Tivoli environment.

Job
A resource that represents a task and its preconfigured parameters that is run on specific managed resources.

Policy region
A collection of resources that share one or more common sets of rules, or policies. Policy regions also represent administrative domains that can be assigned to administrators.

Profile manager
A container for profiles that links the profiles to a set of resources, called subscribers. Profile managers are used to organize and distribute profiles.

Profile
A container for application-specific information about a particular type of resource.

Subscriber
A resource that is subscribed to a profile manager.

Notification
A facility that informs Tivoli administrators of system management operations and reports which administrator performed a particular operation. It is especially useful in large installations that have many Tivoli administrators, because it can provide an audit trail of who performed certain actions in the system.

Scheduler
A facility that enables you to automate tasks in the Tivoli environment.

RDBMS Interface Module (RIM) object
An object that provides the attributes and methods that enable applications to access the Configuration Manager database.

Query library
A container in which an administrator can create and manage Tivoli queries.

For additional information about Tivoli Management Framework, refer to the *Tivoli Management Framework: Planning for Deployment Guide.*

IBM Tivoli Configuration Manager Standard Software Distribution

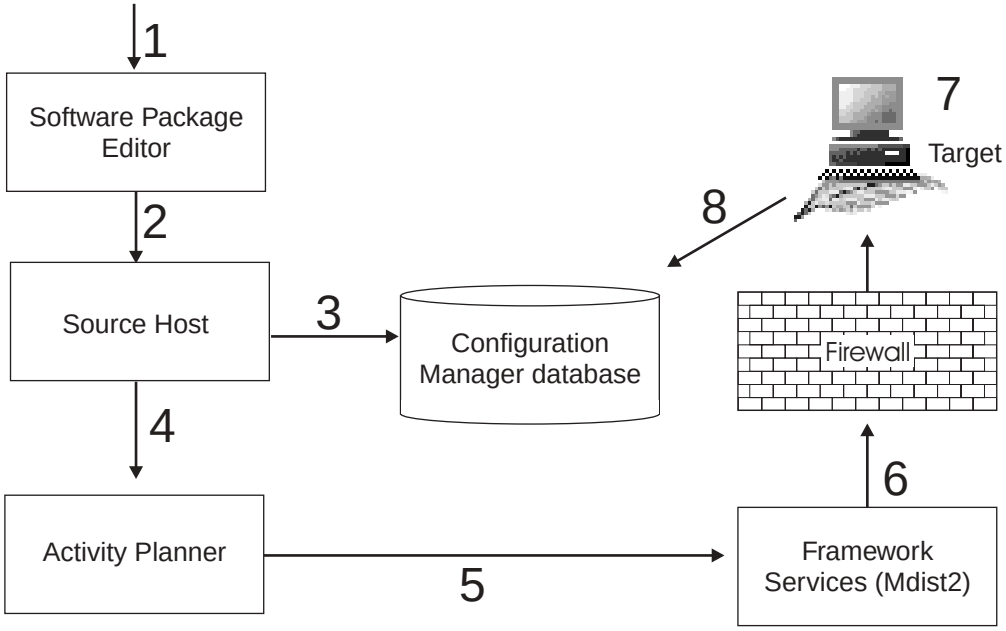


Figure 2. Standard Software Distribution

Referring to Figure 2, IBM Tivoli Configuration Manager standard Software Distribution uses the following procedure:

1. Use the Software Package Editor, which supports many different packaging technologies, to create a software package.

   Software packages can contain commands, data, installation code, signature definitions, and files.
2. Store the software package in the source host.
3. Define a signature for the software package on the Configuration Manager database (also known as Configuration repository).

   This signature enables information about the installed software package to be returned when target systems are scanned.
4. Use Activity Planner to create a plan for installing the software package.
5. Submit the plan. The software package is distributed to targets using Framework services.
6. If needed, use Tivoli Firewall Security Toolbox (TFST) to pass through firewalls to the intranet and internet without reducing security.
7. The software package is installed on the targets. Results are returned to the server.
8. The Configuration Manager database is updated.

IBM Tivoli Configuration Manager Software Distribution using Reference Models

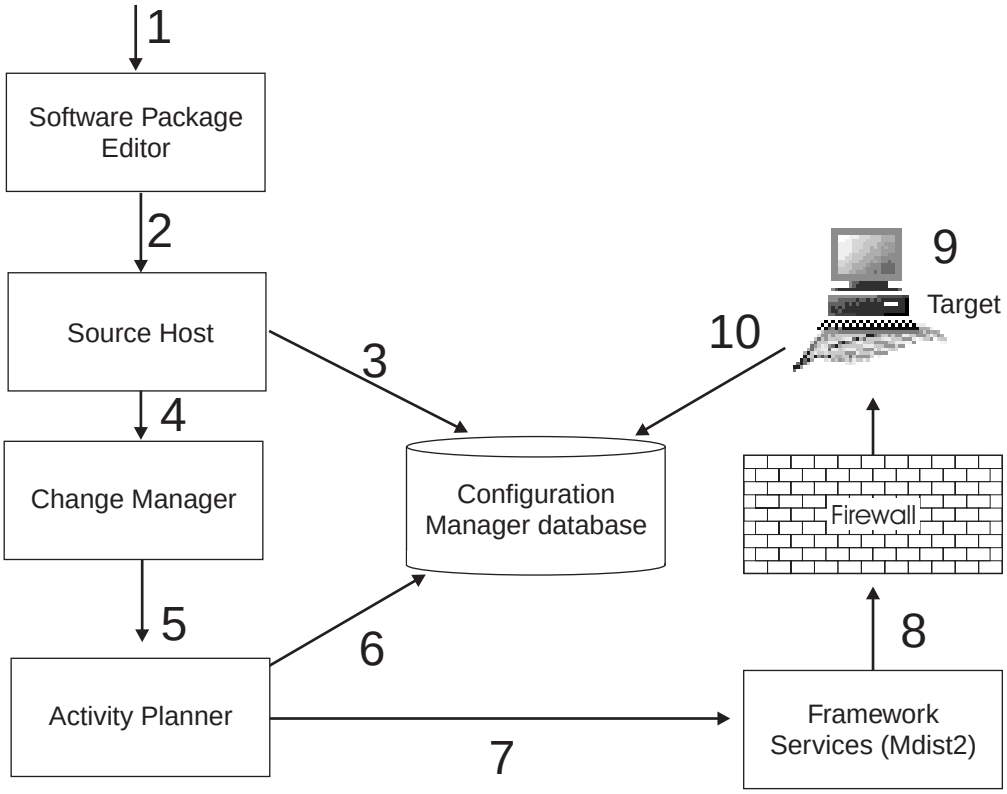


Figure 3. Software Distribution using Reference Models

Referring to Figure 3, IBM Tivoli Configuration Manager Software Distribution using reference models uses the following procedure:

1. Use the Software Package Editor, which supports many different packaging technologies, to create a software package.

   Software packages can contain commands, data, installation code, signature definitions, and files.
2. Store the software package in the source host.
3. Define a signature for the software package in the Configuration Manager database.

   This signature enables information about the installed software package to be returned when target systems are scanned.
4. Use Change Manager to create a reference model.

   Reference models contain system hardware and software configuration requirements for installation on target systems that belong to the model. The reference model is saved in the Configuration Manager database.
5. A synchronization of the reference model automatically generates a plan.
6. Activity Planner submits an action for each system to ensure they match the reference model.
7. Submit the plan. The software package is distributed to targets using Framework services.

8. If needed, use Tivoli Firewall Security Toolbox (TFST) to pass through firewalls to the intranet and internet without reducing security.
9. The software package is installed on the targets. Results are returned to the server.
10. The Configuration Manager database is updated.

IBM Tivoli Configuration Manager components and services

Tivoli Configuration Manager is an integrated software distribution and asset management suite that comprises two main components, Software Distribution and Inventory, and various services.

Software Distribution

Using the Software Distribution component, you can install, configure, and update software remotely within your network, eliminating the need to update software manually on numerous systems. You can:

- Distribute client/server applications, applications for desktops, laptops, and pervasive devices across multi-platform networks
- Update existing software with newer versions
- Synchronize software on distributed systems

The software distribution component comprises the following main elements:

Software package
An object that contains a sequential list of actions to be executed on a target system. These actions comprise:
- Installing, updating, and removing software
- System actions
- Program actions

Source host
The system on which the software package is built and stored. Any machine in a Tivoli environment can be a source host, provided Tivoli Management Framework and the Software Distribution component are installed.

Software Package Editor
A Java™-based graphical interface for creating and customizing software packages. You can use the Software Package Editor to:
- Create a new software package
- Modify an existing software package to create a new one
- Generate a software package automatically using differencing technologies (Autopack)
- Create a software package containing one of the following third party native installation packages:
  - Microsoft® Systems Management Server package definition file
  - Microsoft Software Installer file
  - AIX® package
  - Solaris Operating Environment package
  - Linux package
  - InstallShield
  - HP-UX package
- Create a device software package (Nokia 9300, Nokia 9500, Windows CE, and Palm)

You also use the Software Package Editor to arrange actions contained in the software package in the order in which they are to be performed on the target system.

Web Interface plug-in
Software that enables software distribution and change management to be performed using the Web Interface service.

DataMoving Service
The ability to move data files to or from network workstations to a collection point. Allows for the retrieval of, for example, logs or sales data from remote sites for processing at a central site.

Gateways, repeaters, and bandwidth management functions

The gateway, repeater, and bandwidth management functions comprise the following main elements (see also Figure 1 on page 2):

Gateway
Software that provides communications services between endpoints and the management server

Repeater
A managed node or gateway that caches and transmits data through a repeater hierarchy to designated targets. Repeaters are used for multiplexed distribution and collection operations.

MDist 2
A multiplexed distribution service that enables efficient transfer of data to multiple targets. Administrators can monitor and control a distribution throughout its life cycle using MDist 2.

Multicast distribution
In environments where there is limited bandwidth, you can send distributions using multicast with which you can send a single distribution from the source to a group of targets simultaneously.

Scalable Collection Service (SCS)
Efficient, asynchronous, multiplexed collection of large amounts of data across complex networks used for retrieval of inventory data.

Security

The main security element is:

Security through Firewalls (TFST)
Tivoli Firewall Security Toolkit is supplied with Tivoli Configuration Manager. Tivoli Firewall Security Toolkit provides the facilities to allow Tivoli Configuration Manager to communicate through firewalls in order to manage devices without exposing your network's security.

Inventory

Using traditional methods to assess inventory, you must physically go to each system, write down the software and hardware inventory information you collect, then enter the information into a spreadsheet or database program. When users upgrade software and hardware, you must update this spreadsheet or database. Clearly, this method is time-consuming and difficult to maintain. As a result, administrators and accounting personnel cannot reuse inventory information automatically to perform system and software upgrades and management tasks.

Using the Inventory component, you can gather and maintain up-to-date inventory information in a distributed environment quickly, accurately, and easily. This helps system administrators and accounting personnel manage complex, distributed enterprises.

Administrators and accounting personnel can perform the following tasks:

- Manage all enterprise systems centrally
- Determine the installed software base
- Confirm a software distribution
- Supplement and replace physical inventory function
- Assist in procurement planning
- Check software requirements
- Control assets

For example, you can combine inventory and software distribution operations to determine if any critical files are missing, then re-establish the proper configuration. After creating and deploying management-ready applications, you can continually maintain the desired state of your systems by synchronizing applications and system configurations on an enterprise scale.

The Inventory component uses the following elements:

Inventory profiles
: Inventory uses profiles to contain information about scans, for example, the type of scan to run, which files and directories to scan, whether to run scripts, whether to collect custom MIF files, and so on.

Configuration Manager database
: The relational database management system (RDBMS) that contains the schema (tables and columns) in which software and hardware inventory information is stored. The configuration repository schema provides a structure for storing information collected during an inventory scan.

RDBMS Interface Module (RIM) host
: Software that enables the Inventory component to communicate with an RDBMS. One or more RIM objects connect Inventory to the RDBMS for access to the configuration repository. You can configure multiple RIM objects to write Scalable Collection Service (SCS) data in parallel to the configuration repository.

Collectors
: Repeater sites on which SCS has been installed that store, then forward data either to other collectors or to the inventory data handler. All collectors send data to the inventory data handler, which then sends the data to the configuration repository.

Inventory data handler
: An object that receives data from an inventory scan and uses one or more connections to send the data to the configuration repository.

Inventory also works with SCS to manage the flow of data efficiently across your network. After a target is scanned, Inventory uses SCS or MDist 2 to send the data to the configuration repository.

Activity Planner

Activity Planner is a deployment service with which you can:

- Define a group of activities to be submitted as an activity plan. Activities are single operations that are performed on a set of targets at specified times, and include:
  - Tivoli Management Framework Task Library tasks
  - Software Distribution operations
  - Inventory operations
  - Pristine activities
- Submit or schedule the plan for running
- Monitor the plan while it runs

Activities contained in a plan can have dependencies associated with them that define circumstances under which the activity should be run. The running of the operation defined in the activity is performed by the application to which the operation belongs. The group of activities forms the activity plan.

Activity Planner comprises two components:

Activity Plan Editor

You can use the Activity Plan Editor to:

- Create a plan, in terms of activities, associated to different applications, as a single activity from a single machine in the network
- Schedule the activity plan to run on a specific day and time, to repeat at specific time intervals, or repeat indefinitely
- Schedule activities to run at specific time intervals during the week
- Set conditions on activities so that the execution of one activity is dependent on the completion result of other activities
- Save activity plans in a database to resubmit them at any future time

Activity Plan Monitor

Used to:

- Submit activity plans to be run
- View all submitted activity plans along with their status, start time, and completion time
- View the list of activities contained in the plan
- View a graphical representation of the plan in the Activity Plan Editor window
- For each activity, view the targets assigned to it
- Perform operations such as pause, cancel, and resume
- Restart an activity on an endpoint where the operation was unsuccessful
- Delete the status information of a plan from the activity plan database
- Launch the Distribution Status Console to monitor and control distributions submitted using the Activity Planner

Change Manager

Change Manager (previously called Change Configuration Manager), is a deployment service which, together with Activity Planner, supports software distribution, inventory, and change management in a large network. Activity Planner is a prerequisite of Change Manager. Change Manager works with Activity Plan Monitor to manage specified groups of users, workstations, or devices as subscribers. Subscribers can be resources (users or pervasive devices), groups (containing users or pervasive devices), endpoints, a profile manager, the results of a query.

Change Manager uses reference models, which contain an association of configuration elements and subscribers, to simplify the management of your

network environment. Configuration elements define hardware and software requirements. Using reference models, you can manage subscribers according to the role each plays within your organization.

After you have created the reference model, it can generate an activity plan that includes all the tasks needed to ensure that the desired state of the subscribers matches the requirements defined in the reference model. Change Manager then submits this activity plan to Activity Planner.

If there is a change to requirements, or if a subscriber changes its role, you can simply update the reference model to reflect the changes and generate a new activity plan.

Web Interface

Using the command line, you can grant and remove access to Web objects such as software packages, inventory profiles, and reference models.

The Web Interface (Web UI) enables software distribution and inventory to be initiated by users. Using the Web Interface, you can:

- Install and verify software packages
- Run inventory scans
- View and synchronize reference models

The Web Interface deployment service is a browser-based tool that you use to install and manage various Tivoli Configuration Manager Web objects. The Web Interface has two components, a server component and an endpoint component.

The server component pushes software packages, inventory profiles, and reference models from the Tivoli region to the workstation where the endpoint is installed.

The endpoint component, that is the Web Gateway, stores software packages, inventory profiles, and reference models until they are pulled by the Web UI users.

Resource Manager

A Tivoli region is a three-tier architecture, including servers, gateways, and endpoints, that is created using Tivoli Management Framework. By using the Resource Manager deployment service, you can extend the Tivoli region to a fourth tier, pervasive devices, such as Palm, Pocket PC, and Nokia Communicator.

Resource Manager is installed on a Tivoli server and on the Tivoli gateways managing pervasive devices. A resource gateway, that is an endpoint with Web Gateway installed, connects resources, the pervasive devices, with the Tivoli environment. It uses Web protocol communications to connect to the pervasive devices.

You can use Resource Manager, together with the Software Distribution, Inventory, and Tivoli Web Gateway components, to perform the following operations:

- Add or remove pervasive devices
- Provide access to devices for software distribution
- Provide access to devices for inventory operations
- Customize devices

Although the resource gateway has its own resource database, Resource Manager maintains a master database. The databases of the various resource gateway configurations are subordinate to the master database. The databases notify each other of any changes. For example, when you update the Resource Manager database, Resource Manager notifies the Web Gateway component to update its database. When a new device connects, it is automatically enrolled and the Web Gateway component notifies Resource Manager to update its database.

Enterprise Directory Query Facility

The Enterprise Directory Query Facility is a deployment service that administrators can use to access information stored in enterprise directories inside a Tivoli environment. The administrator can select a specific directory object, or container of directory objects, as subscribers for a reference model or an activity plan. The subscribers can then be targets for software distribution or inventory scans.

The Enterprise Directory Query Facility enables you to access the information contained in an enterprise directory server. For example, the Microsoft Windows® 2000 Active Directory service.

The Enterprise Directory Query Facility consists of directory query libraries and directory queries. Directory query libraries reside in policy regions and are created to contain directory queries. Directory queries enable you to find information about the users or the workstations defined in the enterprise directory server.

Web Gateway

Using Web Gateway you can access Web objects and perform device management in the extended Tivoli environment.

The Web Gateway component supports the Resource Manager deployment service and the Web Interface (Web UI) deployment service. The Resource Manager deployment service extends the traditional three-tier Tivoli environment to a fourth tier, thus providing software distribution, inventory, and management of pervasive devices such as the Palm, Pocket PC, and Nokia Communicator.

The Web Gateway component is comprised of two elements:

- Web Gateway database
- Web Gateway server

These elements are installed on an endpoint machine in the Tivoli environment. The Web Gateway uses WebSphere technology, and provides improved security by leveraging Access Manager for authentication and the HTTPS protocol for secure communications.

Pristine Manager

Using Pristine Manager you can install an operating system on a pristine machine. You can define the pristine machines in the reference models and activity plans even before the machines are part of the Tivoli environment.

Pristine Manager integrates the capabilities of the Microsoft Automated Deployment Services (ADS) or Microsoft Remote Installation Services (RIS) servers with Tivoli functions. Pristine Manager uses the images that are on your RIS and ADS servers to install them on the target machines.

At the same time, Pristine Manager includes the machines in the Tivoli environment as endpoints. It takes the label that you define and makes it the endpoint label of the new machine. This enables Change Manager and Activity Plan Monitor to work with the machines as if they are Tivoli endpoints after the pristine installation. In Pristine Manager, you define the servers that have the images and the pristine machines on which they will be installed. You specify the operating system element and the targets. This creates a connection among the operating system to be installed, the target pristine machines, and the servers. This information is then used to create an activity plan that is used by Activity Planner to do the pristine installation.

Automated Patch Management

Administrators can use Automated Patch Management to distribute and manage security patches and software updates for supported Windows workstations in a Tivoli environment.

Introducing the scenarios in this guide

The remaining chapters in this book contain a series of scenarios that illustrate the main functions of IBM Tivoli Configuration Manager. Using a fictitious company, the XYZ Instruments Corporation, the scenarios describes the different ways in which you can perform Tivoli Configuration Manager operations.

The XYZ Instruments Corporation designs and manufactures precision test instruments for the process control industry and for analytical laboratories.

In a highly-competitive industry, XYZ relies heavily on its network environment to provide and maintain the services required by its staff to produce and sell its products. To this end, XYZ installed Tivoli Configuration Manager.

The company network architecture comprises a number of regions, based on its geographical locations and local business activities. In the region used in the following scenarios, the main architectural elements are as shown in Figure 4:

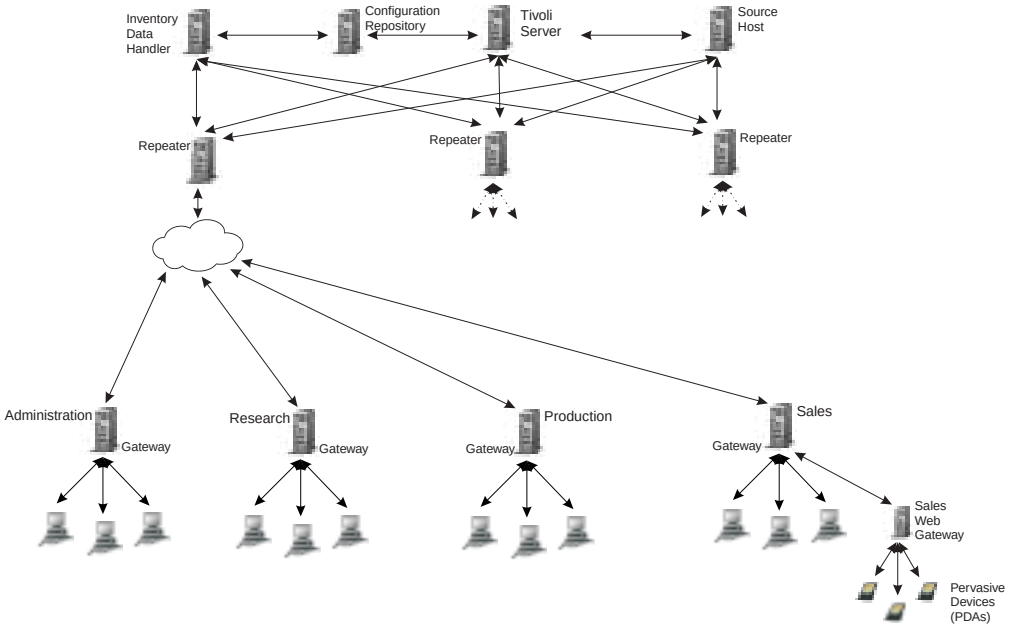


Figure 4. XYZ Instruments Corporation Network Environment

The Tivoli server in this network environment has the following software installed on it:

- Activity Planner
- Change Manager
- Enterprise Directory Query Facility
- Inventory
- Resource Manager
- Software Distribution
- Web Interface
- Scalable Collection Service
- All Java components
- MDist 2 console

Connected to the Tivoli server is a source host and a configuration repository providing storage for the Software Distribution and Inventory data. The configuration repository, in turn, is connected to a database handler. The Tivoli server, source host, and database handler are each connected to each repeater in the next tier of the network.

Each repeater is a managed node. The following software is installed on the lowest repeater in the hierarchy (that is, repeaters that are also configured as gateways):

- Inventory Gateway
- Software Distribution Gateway
- Software Package Editor
- Resource Gateway
- Scalable Collection Service
- Pristine Gateway

The repeaters are connected through Tivoli gateways to the endpoints, on which you can install the following software:

- Tivoli Desktop for Windows, including extensions for:
  - Activity Planner
  - Change Manager
  - Inventory
  - Software Package Editor
  - MDist 2 console

For endpoints managing PDAs and Web UI users, you can install the following software:

- Web Gateway
  - Database
  - Server
  - Web Interface
  - IBM HTTP
  - Web application server (WebSphere®)
  - Database 2™

For security purposes, you can install the following software:

- Access Manager on WebSEAL server
- Access Manager Java Runtime Environment on Tivoli Web Gateway

Chapter 2. Scenario: Distributing software

XYZ Instruments Corporation wants to deploy the following software:

- Lotus Notes® e-mail client to the workstations in its Administration, Research, Production, and Sales departments.
- Lotus® EasySync® Pro, software that synchronizes Lotus Notes e-mail to workstations. Lotus Notes is distributed to all workstations, EasySync Pro is distributed only to the workstations in the Sales department.
- IBM DB2® Everyplace, relational database and synchronization software that provides access to corporate data and applications from PDAs. So DB2 Everyplace is distributed only to the PDAs in the Sales department, as shown in Figure 5:

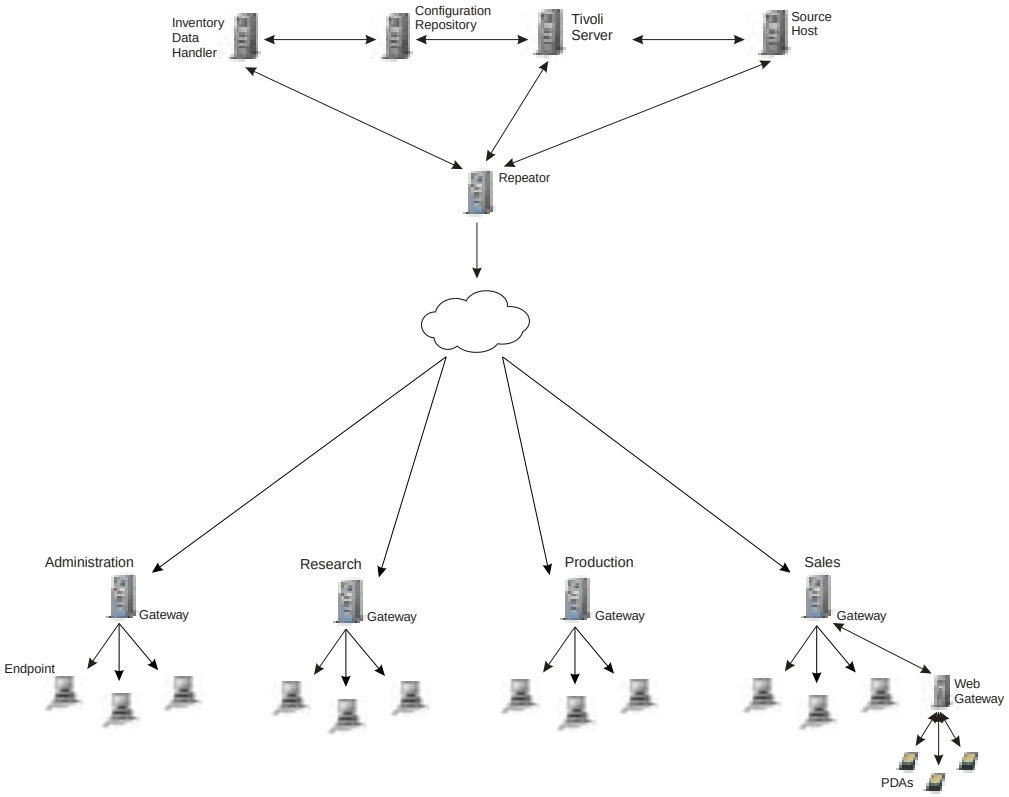


Figure 5. Software Distribution Environment

Overview

Distributing software using IBM Tivoli Configuration Manager involves the following overall process:

1. “Creating the software packages” on page 16
2. “Creating the profile and profile manager” on page 16
3. “Distributing the software packages and verifying the distribution” on page 17

Creating the software packages

The Tivoli administrator first creates the software packages:

- Two software packages, one each for Lotus Notes and EasySync Pro, called LOTUS_NOTES_WSN and EASYSYNC_WSN
- One device software package for the DB2 Everyplace distribution to the PDAs called DB2EPLACE_PDA

To do this, the administrator uses the Software Package Editor wizard at the endpoint where the editor is installed.

For each endpoint, the LOTUS_NOTES_WSN software package:

- Checks for sufficient space
- Installs the software in various locations depending on the variables that are set

For each endpoint, the EASYSYNC_WSN software package:

- Checks for sufficient space
- Checks that Lotus Notes is installed using a defined dependency

  Note: Lotus Notes must be installed before EasySync Pro because EasySync Pro needs an e-mail client present for installation.
- Install the software in various locations depending on the variables that are set

The administrator also creates an inventory signature so that information about each software package is returned after an inventory scan.

For each PDA target, the DB2EPLACE_PDA software package will:

- Check for sufficient space
- Install the software

Creating the profile and profile manager

After creating the software packages, the administrator uses the Tivoli desktop to create a profile manager for this Tivoli region. Then, the administrator makes a software package profile in this new profile manager.

Next, the administrator assigns the subscribers to the profile, associating the software package profile contained in the profile manager and the endpoints. Subscribers are the twelve endpoints shown in Figure 9 on page 41.

The administrator creates a resource group to contain the target devices.

The administrator also creates a profile to be distributed to the resource group for the PDAs and assigns the resource group as the subscriber to the profile.

The administrator imports the software package blocks into the software package profiles. When the import is performed, the software package blocks are transferred from the endpoint where they were created to the Tivoli server. The database on the Tivoli server is updated with the new software package information.

Distributing the software packages and verifying the distribution

The administrator then distributes the software packages through the network to the endpoints. The Software Distribution component distributes the software packages from the source host through the repeater hierarchy to the gateways, then from the gateways to the endpoints. The DB2EPLACE_PDA software package is distributed to the endpoint where the Web Gateway component is installed, where it is stored until each PDA connects to the Web Gateway component and pulls the software.

The Software Distribution component checks the endpoints for status information and transmits the results back through the network, on the exact reverse path, to the Tivoli server. The status of the software packages on each endpoint is updated in the configuration repository.

The administrator can then verify that the software packages are correctly installed by using the MDist 2 console and checking the software distribution log files or the Configuration Manager database.

Additional information

Chapter 3, "Scenario: Scanning for hardware and software," on page 19 describes how to:

- Verify that the software distribution of Lotus Notes and EasySync Pro to the endpoints completed successfully
- Verify that all systems in the enterprise have adequate memory
- Verify that the software distribution of DB2 Everyplace to the PDAs completed successfully

Chapter 4, "Scenario: Automating software distribution and inventory scans," on page 23 and Chapter 5, "Scenario: Managing the network using reference models," on page 27 describe other ways to distribute software.

For more information about distributing software, refer to:

- *User's Guide for Software Distribution*
- *Reference Manual for Software Distribution*
- *User's Guide for Deployment Services*

Chapter 3. Scenario: Scanning for hardware and software

The XYZ Instruments Corporation wants to gather hardware and software information about each system in the company. To do this, the administrator wants to perform the following tasks:

- Using Inventory, verify that the software package is installed. Install the software package on any endpoint where it is missing
- Verify that the software distribution of DB2 Everyplace to the PDAs in Chapter 2, “Scenario: Distributing software,” on page 15 completed successfully
- Verify that all systems in the corporation have adequate memory

Figure 6 shows the region where the tasks are performed:

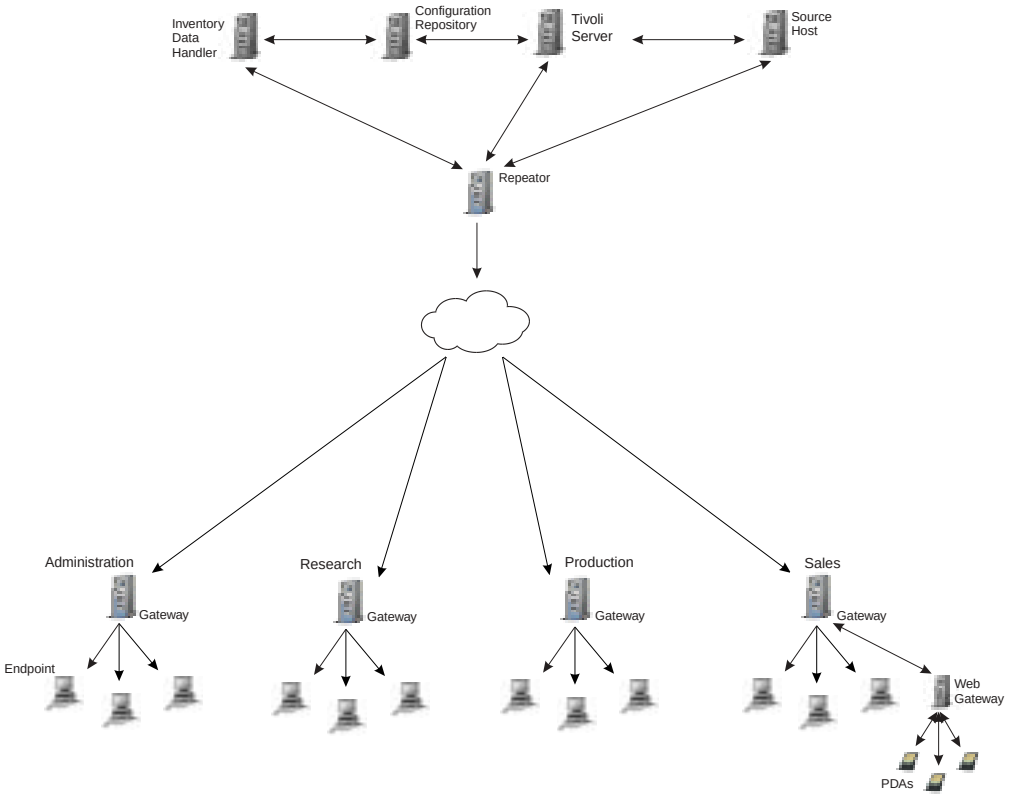


Figure 6. Network for Inventory Scan

Overview

Performing an inventory scan using IBM Tivoli Configuration Manager involves the following overall process:

1. “Creating profile managers and inventory profiles” on page 20
2. “Customizing inventory profiles” on page 20
3. “Distributing inventory profiles” on page 20
4. “Viewing the scan data” on page 20

Creating profile managers and inventory profiles

First, the Tivoli administrator uses the Tivoli desktop to create profile managers and inventory profiles. The administrator creates two types of profile managers: a *dataless profile manager* and a *database profile manager*. Profiles created within dataless profile managers can be distributed to endpoints, and profiles created within database profile managers can be distributed to resource groups.

The administrator chooses to create separate inventory profiles for the hardware and software scans, called INSTALLED_MEMORY_WSN and INSTALLED_SW_WSN. By creating separate profiles, the administrator is able to collect only the information needed each time a scan is run. This is more efficient than creating a single profile that gathers all hardware and software information each time a scan is run. The administrator creates these inventory profiles in the dataless profile manager, because profiles created within this profile manager can be distributed to endpoints.

The administrator then creates a third profile to scan pervasive devices, called INSTALLED_SW_PDA. The administrator creates this profile in the database profile manager so it can be distributed to a resource group containing the PDAs.

Next, the administrator subscribes the targets to the profile managers. The administrator subscribes the endpoints to the dataless profile manager, which contains the INSTALLED_MEMORY_WSN and INSTALLED_SW_WSN profiles, and subscribes the resource group for the PDAs to the database profile manager, which contains the INSTALLED_SW_PDA profile.

Customizing inventory profiles

A new inventory profile is configured by default to collect a certain set of hardware and software information. The administrator must now customize the three profiles to collect only the information required. Using either the Tivoli desktop or the command line, the administrator customizes the profiles in the following ways:

This profile ...	**Is customized to do this ...**
INSTALLED_MEMORY_WSN	Scan endpoints for hardware information.
INSTALLED_SW_WSN	Run a signature scan on the endpoints to collect information about installed software products.
INSTALLED_SW_PDA	Scan the PDAs for information about installed software.

Distributing inventory profiles

The administrator distributes the inventory profiles using the Tivoli desktop or the command line. The administrator distributes the INSTALLED_MEMORY_WSN and INSTALLED_SW_WSN profiles to each endpoint in the corporation and the INSTALLED_SW_PDA profile to the resource group containing the PDAs.

Viewing the scan data

After the scans complete, the administrator can view the scan data in the configuration repository using the Tivoli Configuration Manager query library.

Additional information

Chapter 2, “Scenario: Distributing software,” on page 15 describes how to distribute software using the Software Distribution component.

Chapter 4, “Scenario: Automating software distribution and inventory scans,” on page 23 describes how to perform the same tasks, but automatically.

For more information about scanning hardware and software (in particular patches), refer to:

- *User’s Guide for Deployment Services*
- *User’s Guide for Inventory*
- *Patch Management Guide*

Chapter 4. Scenario: Automating software distribution and inventory scans

Chapter 2, “Scenario: Distributing software,” on page 15 showed how to distribute the Lotus Notes e-mail client and EasySync Pro software to a set of endpoints and the DB2 Everyplace software to a set of devices in the Tivoli region. Figure 5 on page 15 shows the network environment. Chapter 3, “Scenario: Scanning for hardware and software,” on page 19 showed how to verify the distribution, check the systems in the corporation for memory, check the software of the company workstations and the PDAs in the Sales department. The scenario in this chapter shows how to perform the same operations, but more effectively by automating the tasks to be performed and scheduling the tasks to be run at any time.

Activities are single operations that are performed on a set of targets at specified times. Activities in a plan can also have dependencies associated with them, as there is with the Lotus Notes and EasySync Pro installation. Lotus Notes must be installed before EasySync Pro because EasySync Pro needs an e-mail client present for installation. EasySync Pro is therefore dependent on Lotus Notes.

Overview

Automating these distributions using IBM Tivoli Configuration Manager involves the following overall process:

1. “Creating activities and activity plans”
2. “Selecting the targets” on page 24
3. “Scheduling and running the activity plan” on page 24
4. “Monitoring the activity plan” on page 24

Creating activities and activity plans

First, the administrator uses the Activity Plan Editor to define the following activities:

This activity ...	Does this ...
NOTES_INSTALL_WSN	Installs Lotus Notes on target workstations
EASYSYNC_INSTALL_WSN	Installs EasySync Pro on target workstations
DB2EPLACE_INSTALL_PDA	Installs DB2 Everyplace on target PDAs

Note: The administrator sets a condition on the EASYSYNC_INSTALL_WSN activity. This condition ensures that EasySync Pro is not installed unless Lotus Notes has already been installed.

The administrator also selects the following inventory profiles that were created in “Creating profile managers and inventory profiles” on page 20:

This profile ...	Does this ...
INSTALLED_SW_WSN	Scans target workstations for installed software
INSTALLED_SW_PDA	Scans target PDAs for installed software

Selecting the targets

The administrator uses the Activity Plan editor to select the endpoints as targets for:

NOTES_INSTALL_WSN

EASYSYNC_INSTALL_WSN

INSTALLED_SW_WSN

and the PDAs as the targets for:

DB2EPLACE_INSTALL_PDA

INSTALLED_SW_PDA

Scheduling and running the activity plan

To reduce network traffic, the administrator uses the Activity Plan Editor to schedule the activity plan to run on a Saturday. This also allows time for a recovery plan (see "Monitoring the activity plan") to be run the following day, if necessary, before the network traffic increases again on the Monday morning.

The administrator then saves the plan and uses the Activity Plan Monitor to submit it. An entry for the plan now appears in the Activity Plan Monitor window from where the administrator can monitor the status of the plan and its activities.

Monitoring the activity plan

When the activity plan runs, the software is installed on the targets. The INSTALLED_SW_WSN activity scans the workstation targets for installed software and the INSTALLED_SW_PDA scans the PDAs for installed software.

The administrator uses the Activity Plan Monitor to monitor and control the distribution in each defined activity and to see which targets receive a distribution and which ones experience errors. Should unavailable targets, failed installations, or network outages be encountered, the administrator could pause, resume, cancel, or delete a distribution.

If the activity plan fails in any way, for example, installation failed on one of the targets, the administrator can use the Activity Plan Monitor to either:

- Rerun the plan
- Generate a recovery plan containing only those activities that failed and run the plan
- Generate a recovery plan and run the plan on only those targets that failed

Verifying the distribution

After the scans complete, the administrator can view the scan data in the configuration repository (also known as Configuration Manager database) using the Tivoli Management Framework query facility. The administrator can use the queries provided with Tivoli Configuration Manager or create custom queries.

Additional information

Chapter 5, "Scenario: Managing the network using reference models," on page 27 shows how to manage the distributed environment and maintain the preferred configuration using reference models.

For additional information about automating software distributions, refer to:

- *User's Guide for Software Distribution*
- *User's Guide for Deployment Services*
- *Tivoli Management Framework: User's Guide*

Chapter 5. Scenario: Managing the network using reference models

The first scenario, Chapter 2, "Scenario: Distributing software," on page 15, showed how to use the Software Distribution component to distribute the Lotus Notes, EasySync Pro, and DB2 Everyplace software packages. The third scenario, Chapter 4, "Scenario: Automating software distribution and inventory scans," on page 23, showed how to automate the distribution using Activity Planner. This scenario shows how to perform the same activities described in the third scenario, using reference models that define and apply a preferred configuration.

Reference models represent the software and hardware requirements of different categories of user in your organization. The reference model is made up of component models organized in a hierarchical structure. The root level defines requirements that are common to all users and the child models define additional specific requirements that apply only to a particular group of users.

Change Manager also uses reference models to distribute software. For each department, the administrator can create a model of the department requirements and also a model for the organization as a whole. The organization model, or root reference model, defines the requirements that are common to all departments. Child reference models define requirements that are specific to individual departments. Target machines are called subscribers because they subscribe to the model.

Change Manager can have more than one root reference model. This provides greater flexibility in the number of ways in which you can model your enterprise.

Overview

Performing this distribution involves the following overall process:

1. "Creating a reference model" and adding configuration elements
2. "Adding subscribers to a reference model" on page 28
3. "Synchronizing the reference model" on page 28

Creating a reference model

Before the administrator creates a reference model, the contents, or configuration elements of each part of the model, must be determined. Each configuration element references a preferred hardware or software configuration. For example, the XYZCorp reference model contains the following elements:

This model ...	Contains this element type ...	Which means ...
XYZCorp	Inventory Data	Check that the memory on the endpoints is at least 131072 KB
	Software Distribution	Install Software Package LOTUS_NOTES_WSN
	Software Distribution	Install Software Package EASYSYNC_WSN
	Inventory Configuration	Run software scan on targets

This model ...	Contains this element type ...	Which means ...
Administration	Software Distribution	Install Software Package LOTUS_NOTES_WSN
Research	Software Distribution	Install Software Package LOTUS_NOTES_WSN
Production	Software Distribution	Install Software Package LOTUS_NOTES_WSN
Sales	Software Distribution	Install Software Package LOTUS_NOTES_WSN
	Software Distribution	Install Software Package EASYSYNC_WSN
PDAs	Software Distribution	Install Software Package DB2EPLACE_INSTALL_PDA

When the configuration elements have been determined, the administrator uses Change Manager to create a new reference model and specify the configuration elements. As part of this operation, the administrator sets a priority for the configuration elements, in order to install EasySync Pro only after Lotus Notes is installed.

Note: Reference models can also be created by copying or importing existing ones, and changing them.

Adding subscribers to a reference model

Once the reference model is ready, the administrator assigns subscribers to the reference model by building a list of targets, then assigning the contents of the list as subscribers to the model. Alternatively, the administrator can choose an inventory query or a profile manager as a subscriber.

Synchronizing the reference model

The administrator then uses Change Manager to synchronize the reference model. When the administrator synchronizes the reference model, Change Manager first performs the check described by the Inventory Data element. This check is performed against all the subscribers associated to the reference model. If the check fails, the synchronization fails. If the check is successful, Change Manager automatically creates a new activity plan containing only those activities that are needed to maintain the preferred configuration of the target. Once the activity plan is created, the administrator submits it to Activity Planner for running.

When the plan runs, the LOTUS_NOTES_WSN and EASYSYNC_WSN software packages are distributed to the endpoints and the DB2EPLACE_INSTALL_PDA software package is distributed to the PDAs. The Inventory Configuration element then runs a scan to verify the distribution.

Additional information

Chapter 6, “Scenario: Managing a network with firewalls,” on page 31 describes how to distribute software across firewalls using the Web Interface.

For additional information about using reference models to manage your network, refer to:

- *User’s Guide for Software Distribution*
- *User’s Guide for Inventory*
- *User’s Guide for Deployment Services*

Chapter 6. Scenario: Managing a network with firewalls

The more complex and sophisticated a network becomes, the greater is the concern about security. XYZ Instruments Corporation wants to distribute the Lotus Notes and EasySync Pro applications again, but this time their network has been made more secure by introducing firewalls. In this scenario, the administrator uses the Web Interface to perform Tivoli Configuration Manager operations across firewalls.

The Web Interface provides a two-step, push-pull solution to performing Tivoli Configuration Manager operations across firewalls, see Figure 7:

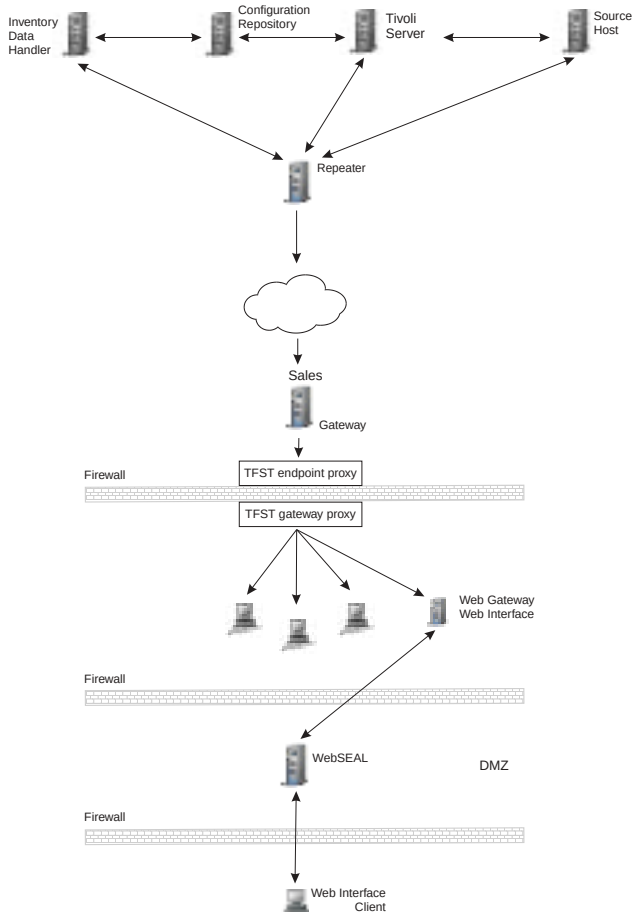


Figure 7. Distributing Software Across Firewalls

First, the administrator distributes a software package to the endpoint where the Web Gateway component is installed. The package is stored there in a depot and the administrator provides access to the package to Web Interface client users. This is the push and is called publishing. Next, the user uses a Web browser to access the Web Interface servlet that queries the Web Gateway component for Web objects that have been published for the user. The user selects the Web object, which is then downloaded to the user machine together with software to run the object. This is the pull. The operation runs and the results are pushed back to the Web Gateway component where the results are stored temporarily in the database. The Web Gateway then sends the data to the appropriate Tivoli server.

When firewalls are in use, on one side of the firewall, Tivoli Firewall Security Toolbox (TFST) provides an endpoint proxy that connects to the gateway as if it were the endpoint. On the other side of the firewall, the endpoints are connected to a gateway proxy, as if it were the gateway. The gateway proxy and endpoint proxy communicate with each other through the firewall and are used when a push occurs. When a pull takes place, the request from he Web Interface Client is authenticated and the Web Interface accesses the WebSEAL machine instead of the Web Gateway.

Overview

The administrator decides to distribute the software using reference models. Doing this involves the following overall process:

1. “Creating a reference model” on page 27
2. “Adding subscribers to a reference model” on page 28
3. “Publishing the reference model”
4. “Synchronizing the reference model”
5. “Verifying the distribution”

Publishing the reference model

The administrator uses the command line to define the category tree seen in the Web Interface category panel and publish the reference model. For example:

/Company

/All

– Lotus Notes

/Sales

– EasySync Pro

Synchronizing the reference model

When the Web Interface user decides to synchronize a reference model, the user logs onto the Web Interface and selects the reference model from the appropriate category.

Note: Only users in the Sales department can see the EasySync Pro reference model.

The Web Interface user synchronizes the reference model. This synchronization installs the software.

Verifying the distribution

To verify the distribution, the administrator publishes an inventory profile which the Web Interface user can use to run a scan.

When you distribute an inventory profile, the profile is stored by the Web Gateway component. A user then uses the Web Interface to connect to the Web Gateway component, pull the profile, and run it locally. When the Web Interface connects to the Web Gateway component, the request is routed through WebSEAL, which authenticates the Web Interface, and the profile is pulled automatically.

Additional information

For more information about managing networks with firewalls, refer to:

- *User's Guide for Deployment Services*
- *Planning and Installation*
- *Tivoli Management Framework: User's Guide for Firewall Security Toolbox*

Chapter 7. Scenario: Device management

Pervasive Device Management is a feature of IBM Tivoli Configuration Manager that is used to perform operations on pervasive devices. XYZ Instruments Corporation wants to distribute the DB2 Everyplace application. The functionality provided by this feature includes software distribution, inventory, and configuration management. Figure 8 shows the region where the tasks are performed:

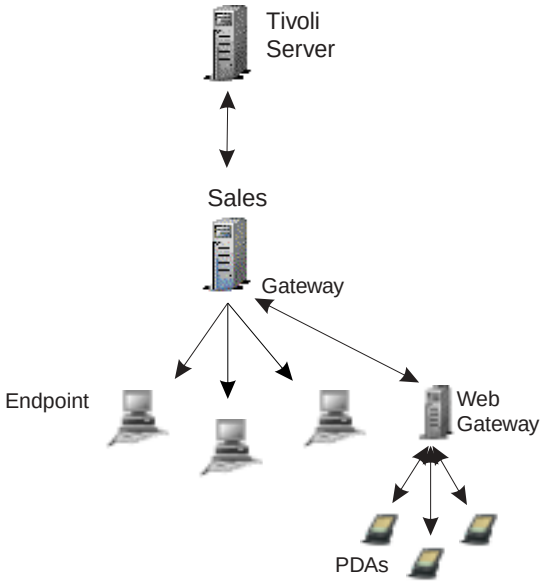


Figure 8. Managing Pervasive Devices

Extending Tivoli Configuration Manager management capabilities to pervasive devices, such as PalmOS, WinCE, and Nokia Communicator (Nokia 9300 and Nokia 9500) devices, allows the update of configuration information and software on these devices using the same tools with which desktops and servers are managed. This allows for easier and better control over the increasing number of pervasive devices being used for business applications across the enterprise. Another advantage is that administrators do not need to learn to use a separate, specialized tool for managing different kinds of pervasive devices.

Overview

The administrator decides to distribute the software using reference models. Doing this involves the following overall process:

1. “Creating a reference model” on page 36
2. “Synchronizing the reference model” on page 36
3. “Verifying the distribution” on page 36

Creating a reference model

The administrator defines a reference model for the marketing people who have been assigned a device of type, for example, Palm OS. The default configuration should have an e-mail client, a browser, and a list of contacts for the main customers installed.

The Change Configuration Manager uses information in the inventory database, to determine the state of the package on the devices and automatically generates an Activity Plan to install what is required on each of the devices.

Synchronizing the reference model

The administrator then uses Change Manager to synchronize the reference model. When the administrator synchronizes the reference model, Change Manager first performs the check described by the Inventory Data element. This check is performed against all the subscribers associated to the reference model. If the check fails, the synchronization fails. If the check is successful, Change Manager automatically creates a new activity plan containing only those activities that are needed to maintain the preferred configuration of the target. Once the activity plan is created, the administrator submits it to Activity Planner for running.

The Software Distribution engine, when it has received the device group, interacts with Tivoli Resource Manager to know the list of the endpoints that control the target devices and submits the request to those endpoints. Figure 8 on page 35 shows a single endpoint, but a distribution could actually spawn across many endpoints.

When the endpoint receives the distribution, it decodes the software package and performs the actions on the objects, as described in the software package. In this case, the built-in actions are specific to the Palm device.

Verifying the distribution

To verify the distribution, the administrator creates an inventory profile and distributes it to the PDAs.

Chapter 8. Scenario: Administering the Web Interface

This scenario describes the administrator's tasks for setting up the Web Interface and maintaining it. A description of how the Web user uses the interface to perform selected inventory and software distribution activities is in *IBM Tivoli Configuration Manager: User's Guide for Deployment Services*, SC23-4710.

Overview

Administering the Web Interface involves the following processes:

- "Making Web objects available"
- "Determining what has been published" on page 38
- "Monitoring the results of operations" on page 39

Before you start using the Web Interface, ensure that:

- The Web Infrastructure has been installed on the endpoint
- The Web Infrastructure has been installed on the Tivoli server
- The WebUI_Admin role has been added on the Tivoli server
- The Software Distribution, Change Manager, and Inventory plug-ins have been registered on the Tivoli server

Making Web objects available

The Configuration Manager Web Interface allows Web users to perform operations using Web objects. Web objects can be:

- Software packages
- Inventory profiles
- Reference models

Before a Web object can be used, it has to be published. This process grants access rights to those users who need to access the object, and copies it to a server from where it can be accessed by means of the Web.

You can also use the Web Interface component in a non-secure environment, that is, without IBM Tivoli Access Manager and IBM Tivoli Access Manager WebSEAL security mechanisms. Running the Web Interface in a non-secure environment means that no authentication is performed when accessing Web objects. When publishing a Web object, the administrator can choose to not specify user information so that the object published can be accessed by all users.

In an existing environment with the IBM Tivoli Access Manager and IBM Tivoli Access Manager WebSEAL security mechanisms configured and installed, you can switch to an unrestricted environment where all Web objects already published and any new objects published become accessible for all users.

To make an object available, use the **wweb** command to give access to a specified Web object to one user, several users, a list of users, or to grant unrestricted access to all users. A user can access the Web Interface from more than one computer and perform different or the same activities at each computer, provided that the same user name is used. To unpublish a software package that is no longer required, the administrator can unpublish the object using the **wweb** command.

Determining what has been published

To determine which software packages or reference models have already been published in a policy region, use the following queries:

- PUBLISHED_PACKAGES_QUERY to list all software packages that have been published.
- PUBLISHED_REFMODS_QUERY to list all reference models that have been published.
- PUBLISHED_INV_QUERY to list all inventory profiles that have been published.

To run either of these queries:

1. Open the Policy Region window
2. Double-click the WEBUI_QUERY library icon. The WEBUI_QUERY window is displayed. This window shows one or both of the Web Interface queries.
3. Right-click the required query icon and select Run.

Installing software packages

The Web Interface is a Web-based tool that allows you to maintain the correct levels of your system and application software on a workstation that is not permanently connected to your enterprise network. It also allows you to satisfy enterprise requests for information about such a workstation. Using a suitable Web browser you access a server from which you can perform operations that will do one or more of the following:

- Install, upgrade, or uninstall individual software objects
- Satisfy enterprise requests for information about the software and hardware used with your computer
- Bring your computer into line with a predetermined enterprise standard in terms of software installed

To perform these activities you select Web objects and run them on your workstation. There are three types of Web objects:

Software packages
: These packages contain a software object, and the associated instructions to tell your computer how to install the software and configure it. Packages can be for new software or for upgrading existing software.

Inventory scans
: These scan your computer and send a list of the hardware, or software, or both, to a central enterprise database.

Reference models
: These are structured lists that contain the desired state of the software on your computer (which software objects should be installed and at which level). These interact with your computer to determine what is the current state of the software, and then install a set of software packages that will bring your computer's software to the desired level. Software that is not mentioned in the model is not touched. Reference models often end with an inventory scan to report the final state back to the central database.

From the Web Interface you can install, verify, and uninstall software packages. You connect to the server, obtain a current list of available software packages, and retrieve them at your convenience.

Monitoring the results of operations

When a user performs a Web Interface operation, the results of the operation are sent to the Tivoli server through the Tivoli Web Gateway. The log file is updated in the working directory of the Tivoli server and some tables are updated on the machine where you have installed the Inventory database, as defined by the RIM object, as for example the following:

- SD_INST
- SD_H_INST
- COMPUTER

The software packages distributed using Software Distribution are tracked in the Inventory database by the endpoint label, while the software packages distributed using the Web Interface are tracked by the workstation hostname.

Chapter 9. Scenario: Providing automated patch management

XYZ Instruments Corporation wants to deploy the latest Windows Hotfix to all Windows workstations.

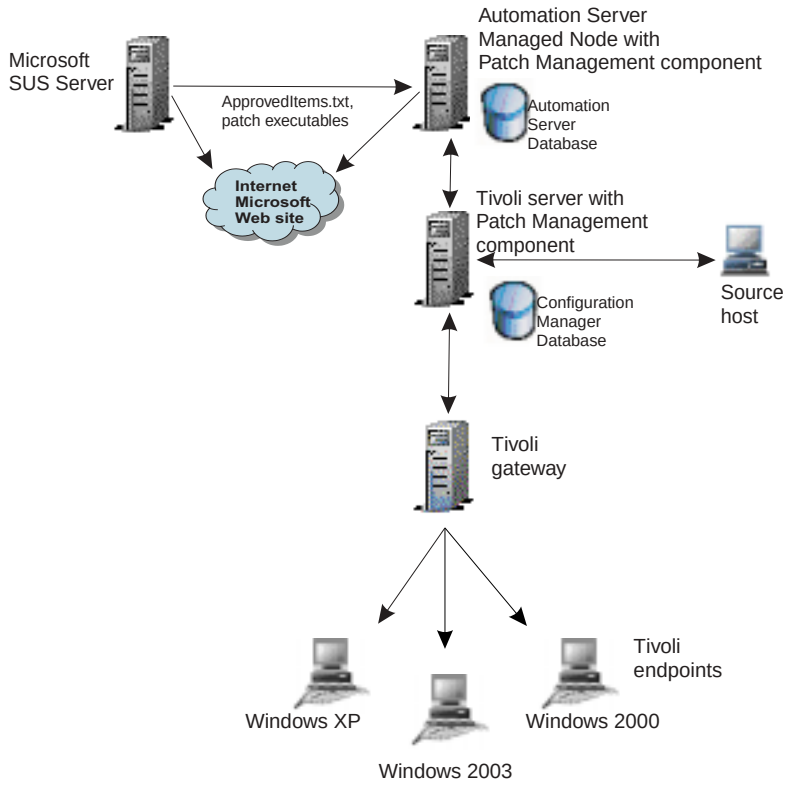


Figure 9. Software Distribution Environment

Overview

Distributing patches using IBM Tivoli Configuration Manager involves the following overall process:

1. “Identifying and approving missing patches” on page 42
2. “Scanning for patches” on page 42
3. “Building software packages, queries, and plans” on page 42
4. “Scheduling and running the activity plan” on page 42
5. “Registering the results” on page 42

Identifying and approving missing patches

1. The administrator is notified of the availability of a new patch.
2. The administrator validates the given patch in a test environment.
3. The administrator connects to Microsoft Software Update Services (SUS) Server to approve the patch.

Scanning for patches

The administrator uses the Inventory component to scan and collect missing patch information from endpoints. An inventory profile, which exploits the MBSA tool, is submitted.

The administrator can configure the scan to report only the list of those patches approved by the administrator through the SUS server.

Building software packages, queries, and plans

For all missing patches that have been approved the Patch Automation Server builds:

1. Software packages.
2. Target inventory queries to determine the list of targets to which apply the patches.
3. Activity plans containing the patches to be installed. When the plan is created, the administrator is notified. Depending on the configuration settings, either several plans are created, one for each patch to be installed, or a single plan is created containing all the patches to be installed.

Scheduling and running the activity plan

The administrator can modify the plan and submit it using the Activity Plan Monitor. An entry for the plan now appears in the Activity Plan Monitor window from where the administrator can monitor the status of the plan and its activities.

Registering the results

A final activity containing an inventory scan is defined in each activity plan to report the status of the patch on the endpoints when the activities of the plan have completed.

Appendix A. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in this product enable users to do the following:

- Use assistive technologies, such as screen-reader software and a digital speech synthesizer, to hear what is displayed on the screen. Consult the product documentation of the assistive technology for details on using those technologies with this product.
- Operate specific or equivalent features using only the keyboard.
- Magnify what is displayed on the screen.

In addition, the product documentation has been modified to include features to aid accessibility:

- All documentation is available in both HTML and convertible PDF formats to give the maximum opportunity for users to apply screen-reader software.
- All images in the documentation are provided with alternative text so that users with vision impairments can understand the contents of the images.

Navigating the interface using the keyboard

Standard shortcut and accelerator keys are used by the InstallShield wizard and are documented by the operating system. Refer to the documentation provided by your operating system for more information. Using Java-based GUIs you press the Tab key to select GUI buttons. Perform the function related to the selected button by pressing:

- Enter for the default selection
- The spacebar for all other selections

Magnifying what is displayed on the screen

You can enlarge information on the product windows using facilities provided by the operating systems on which the product is run. For example, in a Microsoft Windows environment, you can lower the resolution of the screen to enlarge the font sizes of the text on the screen. Refer to the documentation provided by your operating system for more information.

Appendix B. Support information

This section describes the following options for obtaining support for IBM products:

- "Searching knowledge bases"
- "Obtaining fixes"
- "Contacting IBM Software Support" on page 46

Searching knowledge bases

If you have a problem with your IBM software, you want it resolved quickly. Begin by searching the available knowledge bases to determine whether the resolution to your problem is already documented.

Search the information center on your local system or network

IBM provides extensive documentation that can be installed on your local computer or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, reference information, and support documents.

Search the Internet

If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem. To search multiple Internet resources for your product, expand the product folder in the navigation frame to the left and select **Web search**. From this topic, you can search a variety of resources including:

- IBM technotes
- IBM downloads
- IBM Redbooks
- IBM developerWorks
- Forums and newsgroups
- Google

Obtaining fixes

A product fix might be available to resolve your problem. You can determine what fixes are available for your IBM software product by checking the product support Web site:

1. Go to the IBM Software Support Web site (http://www.ibm.com/software/support).
2. Under **Products A - Z**, select your product name. This opens a product-specific support site.
3. Under **Self help**, follow the link to **All Updates**, where you will find a list of fixes, fix packs, and other service updates for your product. For tips on refining your search, click **Search tips**.
4. Click the name of a fix to read the description and optionally download the fix.

To receive weekly e-mail notifications about fixes and other news about IBM products, follow these steps:

1. From the support page for any IBM product, click **My support** in the upper-right corner of the page.
2. If you have already registered, skip to the next step. If you have not registered, click register in the upper-right corner of the support page to establish your user ID and password.
3. Sign in to **My support**.
4. On the My support page, click **Edit profiles** in the left navigation pane, and scroll to **Select Mail Preferences**. Select a product family and check the appropriate boxes for the type of information you want.
5. Click **Submit**.
6. For e-mail notification for other products, repeat Steps 4 and 5.

For more information about types of fixes, see the *Software Support Handbook* (http://techsupport.services.ibm.com/guides/handbook.html).

Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus, and Rational products, as well as DB2 and WebSphere products that run on Windows or UNIX operating systems), enroll in Passport Advantage in one of the following ways:
  - **Online**: Go to the Passport Advantage Web page (http://www.lotus.com/services/passport.nsf/WebDocs/ Passport_Advantage_Home) and click **How to Enroll**
  - **By phone**: For the phone number to call in your country, go to the IBM Software Support Web site (http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.
- For IBM eServer software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web page (http://www.ibm.com/servers/eserver/techsupport.html).

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web (http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region for phone numbers of people who provide support for your location.

Follow the steps in this topic to contact IBM Software Support:

1. Determine the business impact of your problem.
2. Describe your problem and gather background information.
3. Submit your problem to IBM Software Support.

Determine the business impact of your problem

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

Severity 1	**Critical** business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
Severity 2	**Significant** business impact: The program is usable but is severely limited.
Severity 3	**Some** business impact: The program is usable with less significant features (not critical to operations) unavailable.
Severity 4	**Minimal** business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

Describe your problem and gather background information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can the problem be re-created? If so, what steps led to the failure?
- Have any changes been made to the system? (For example, hardware, operating system, networking software, and so on.)
- Are you currently using a workaround for this problem? If so, please be prepared to explain it when you report the problem.

Submit your problem to IBM Software Support

You can submit your problem in one of two ways:

- **Online**: Go to the ″Submit and track problems″ page on the IBM Software Support site (http://www.ibm.com/software/support/probsub.html). Enter your information into the appropriate problem submission tool.
- **By phone**: For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook on the Web (techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

For more information about problem resolution, see Searching knowledge bases and Obtaining fixes.

Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described 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:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785 U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION ″AS IS″ WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement might not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

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
2Z4A/101
11400 Burnet Road
Austin, TX 78758 U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information in softcopy form, the photographs and color illustrations might not display.

Trademarks

IBM, the IBM logo, Tivoli, the Tivoli logo, Tivoli Enterprise, Tivoli Enterprise Console, NetView, Wake on LAN, AIX, AS/400, DB2, OS/2, and OS/400 are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of

performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Microsoft, Windows, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

Other company, product, and service names may be trademarks or service marks of others.

Program Number: 5724-C06

Printed in USA

GC23-4703-03