IBM Tivoli Directory Server

What's New for This Release

Version 6.1

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This edition applies to version 6, release 1, of IBM Tivoli Directory Server and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this book

IBM® Tivoli® Directory Server is the IBM implementation of Lightweight Directory Access Protocol for supported Windows®, AIX®, Linux® (xSeries®, zSeries®, pSeries®, and iSeries™), Solaris, and Hewlett-Packard UNIX® (HP-UX) operating systems.

IBM Tivoli Directory Server Version 6.1 What's New for This Release contains information about the new features in the IBM Tivoli Directory Server Version 6.1 release.

Intended audience for this book

This book is intended for system administrators and directory server administrators who are responsible for installing and maintaining IBM Tivoli Directory Server.

Publications

This section lists publications in the IBM Tivoli Directory Server version 6.1 library and related documents. The section also describes how to access Tivoli publications online and how to order Tivoli publications.

IBM Tivoli Directory Server version 6.1 library

The following documents are available in the IBM Tivoli Directory Server version 6.1 library:

- *IBM Tivoli Directory Server Version 6.1 What's New for This Release*, SC23-6539-00

  Provides information about the new features in the IBM Tivoli Directory Server Version 6.1 release.

- *IBM Tivoli Directory Server Version 6.1 Quick Start Guide*, GI11-8172-00

  Provides help for getting started with IBM Tivoli Directory Server 6.1. Includes a short product description and architecture diagram, as well as a pointer to the product Information Center and installation instructions.

- *IBM Tivoli Directory Server Version 6.1 System Requirements*, SC23-7835-00

  Contains the minimum hardware and software requirements for installing and using IBM Tivoli Directory Server 6.1 and its related software. Also lists the supported versions of corequisite products such as DB2® and GSKit.

- *IBM Tivoli Directory Server Version 6.1 Installation and Configuration Guide*, GC32-1560-00

  Contains complete information for installing, configuring, and uninstalling IBM Tivoli Directory Server. Includes information about upgrading from a previous version of IBM Tivoli Directory Server.

- *IBM Tivoli Directory Server Version 6.1 Administration Guide*, GC32-1564-00

  Contains instructions for performing administrator tasks through the Web Administration Tool and the command line.

- *IBM Tivoli Directory Server Version 6.1 Command Reference*, SC23-7834-00

  Describes the syntax and usage of the command-line utilities included with IBM Tivoli Directory Server.

- *IBM Tivoli Directory Server Version 6.1 Server Plug-ins Reference*, GC32-1565-00

Contains information about writing server plug-ins.

- *IBM Tivoli Directory Server Version 6.1 Programming Reference*, SC23-7836-00

  Contains information about writing Lightweight Directory Access Protocol (LDAP) client applications in C and Java™.

- *IBM Tivoli Directory Server Version 6.1 Performance Tuning and Capacity Planning Guide*, SC23-7836-00

  Contains information about tuning the directory server for better performance. Describes disk requirements and other hardware needs for directories of different sizes and with various read and write rates. Describes known working scenarios for each of these levels of directory and the disk and memory used; also suggests rough rules of thumb.

- *IBM Tivoli Directory Server Version 6.1 Problem Determination Guide*, GC32-1568-00

  Contains information about possible problems and corrective actions that can be tried before contacting IBM Software Support.

- *IBM Tivoli Directory Server Version 6.1 Messages Guide*, GC32-1567-00

  Contains a list of all informational, warning, and error messages associated with IBM Tivoli Directory Server 6.1.

- *IBM Tivoli Directory Server Version 6.1 White Pages*, SC23-7837-00

  Describes the Directory White Pages application, which is provided with IBM Tivoli Directory Server 6.1. Contains information about installing, configuring, and using the application for both administrators and users.

Related publications

The following documents also provide useful information:

- *Java Naming and Directory Interface™ 1.2.1 Specification* on the Sun Microsystems Web site at http://java.sun.com/products/jndi/1.2/javadoc/index.html.

  IBM Tivoli Directory Server Version 6.1 uses the Java Naming and Directory Interface (JNDI) client from Sun Microsystems. See this document for information about the JNDI client.

Accessing terminology online

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

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

http://www.ibm.com/software/globalization/terminology

Accessing publications online

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Information Center Web site at http://publib.boulder.ibm.com/tividd/td/link/tdprodlist.html.

In the Tivoli Information Center window, click **Tivoli product manuals**. Click the letter that matches the first letter of your product name to access your product

library. For example, click **M** to access the IBM Tivoli Monitoring library or click **O** to access the IBM Tivoli OMEGAMON® library.

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 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, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:
1. Go to http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi.
2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

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 the Accessibility Appendix in the *IBM Tivoli Directory Server Version 6.1 Installation and Configuration Guide*.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site at 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:
- IBM Support Assistant: You can search across a large collection of known problems and workarounds, Technotes, and other information at http://www.ibm.com/software/support/isa.
- 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 resolving problems, see the *IBM Tivoli Directory Server Version 6.1 Problem Determination Guide*.

Conventions used in this book

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

Typeface conventions

This book 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

- Citations (examples: titles of books, diskettes, and CDs)
- Words defined in text (example: a nonswitched line is called a *point-to-point line*)
- Emphasis of words and letters (words as words example: "Use the word *that* to introduce a restrictive clause."; letters as letters example: "The LUN address must start with the letter *L*.")
- New terms in text (except in a definition list): a *view* is a frame in a workspace that contains data.
- Variables and values you must provide: ... where *myname* represents....

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

Operating system-dependent variables and paths

This book uses the UNIX convention for specifying environment variables and for directory notation.

When using the Windows command line, replace $*variable* with **%** *variable***%** for environment variables and replace each forward slash (/) with a backslash (\) in directory paths. The names of environment variables are not always the same in the Windows and UNIX environments. For example, %TEMP% in Windows environments is equivalent to $TMPDIR in UNIX environments.

Note: If you are using the bash shell on a Windows system, you can use the UNIX conventions.

About this release

IBM Tivoli Directory Server is the IBM implementation of the Lightweight Directory Access Protocol (LDAP) for supported Windows, AIX, xSeries, zSeries, iSeries, and pSeries Linux, Solaris, and HP-UX operating systems. IBM Tivoli Directory Server provides a server that stores directory information using a DB2 database, a proxy server for routing LDAP operations to other servers, a client, and a graphical user interface (GUI) for managing servers.

IBM Tivoli Directory Server is:
- A powerful and authoritative enterprise directory infrastructure that is a critical enabler for enterprise security.
- An important part of the IBM Tivoli Integrated Identity Management portfolio and plays a key role in building the enterprise identity data infrastructure for applications such as identity management, portals, and Web services.
- The default directory for WebSphere® Application Server and Portal, Tivoli Identity Manager and Access Managers, as well as the AIX operating system.

New in this release

IBM Tivoli Directory Server 6.1 includes the following new capabilities:
- **Deployability enhancements**
  - Installation enhancements
    - Typical and Custom installation paths
      - Typical installation uses defaults and creates a default directory server instance
      - Custom installation allows for customization of the installation and launches a configuration tool.
    - InstallShield GUI installation for all operating systems.
    - Native installation also provided for AIX, Linux, Solaris, and HP-UX operating systems.
    - Installation of updated corequisite products: DB2 V9.1, Embedded WebSphere Application Server 6.1, GSkit 7.0.3.30.
    - Installation of IBM Tivoli Directory Integrator 6.1.1 Server runtime and Administration and Monitoring Console.
    - Detection of base WebSphere Application Server.
    - Ability to install the IBM Tivoli Directory Server Web Administration Tool and IBM Tivoli Directory Integrator Administration and Monitoring Console into the base WebSphere Application Server product.
    - Silent installation and uninstallation can now install and uninstall corequisite products.
    - Automatic upgrade from IBM Tivoli Directory Server 5.1 and 5.2 releases to IBM Tivoli Directory Server 6.1.
    - Ability to select the version of DB2 to use with IBM Tivoli Directory Server: DB2 V8 or DB2 V9.
    - Installation includes Java 5 SDK.
  - DB2 migration for existing directory server instances.

- – Instance deployment tool to create additional standalone, proxy, peer, or replica servers.
- – Utility to create an operating system user to own a directory server instance.
- – Option to create a default directory server instance.
- – Option to specify encryption salt value during instance creation, making it easier to synchronize servers.
- – Create suffix entries automatically whenever necessary. The directory administrator can configure a new suffix dynamically and start adding entries below it. If the suffix entry does not exist, it is created as soon as the first child entry is added.
- **Simplified performance tuning**
  - – Performance Tuning Tool provides automatic tuning of directory server caches and DB2 buffer pools.
  - – Performance profiler provides information about directory server runtime performance using:
    - - Performance trace based on the server's independent trace facility (ldtrc).
    - - Performance hotspot figures in the audit log for each operation that is configured to be audited.
- **Manageability enhancements**
  - – More granular server administrative roles for delegation of administrative tasks
  - – CARS integration for directory server audit and message logs
  - – Tool to report version (VRMF) of all installed IBM Tivoli Directory Server packages
  - – SNMP monitor based on IBM Tivoli Directory Integrator for performance and availability
  - – Enforced minimum ulimits for directory server
  - – Autonomic attribute cache tuning
  - – Tivoli monitoring templates available
- **User interface enhancements**
  - – Improved Web Administration Tool interface, including the following:
    - - New Login and Welcome pages
    - - Improved 'Manage entries' panel
    - - Clickable URLs that expand; improved display of Directory Information Tree levels
    - - More intuitive 'Add entry' wizard
    - - Option to create entries that are similar to existing entries
    - - Improved 'Manage topology' panel
    - - Improved 'Add replica' and 'Add master' operations
    - - Improved 'Copy Entry' and 'Edit Attributes' panel
    - - New panel for viewing root DSE information
    - - New panel for controlling server tracing
    - - Web Administration Tool messages now included in *Messages Guide*
  - – Server plug-in interface additions
    - - Access provided to client and server IP addresses
    - - Added functions for plug-ins START_FN and CLOSE_FN
  - – All operational attributes notation (RFC 3673)

- - Shortcuts "+" and "++"
  - Attribute classes
    - For access control list attributes: +ibmaciand ++ibmaci
    - For entry attributes: +ibmentryand ++ibmentry
    - For password policy attributes: +ibmpwdpolicyand ++ibmpwdpolicy
    - For replication attributes: +ibmrepland ++ibmrepl
- **Security enhancements**
  - Attribute encryption provides the ability to have arbitrary attributes encrypted when they are stored in the underlying directory database.
  - New password encryption options
    - Salted SHA
    - MD5
  - Pass-through authentication: if an LDAP client tries to bind to the Tivoli Directory Server and the credential is not available locally, the server attempts to verify the credential from an external directory server on behalf of the client.
  - Password policy enhancements
    - User and group-based policies (including None)
    - Policy enforced for Digest-MD5 Binds
  - PKCS#11 hardware key storage and crypto accelerators: cryptographic hardware can be used to securely store the key database file and accelerate cryptographic operations. Full Federal Information Processing Standards (FIPS) support is now provided.
- **New capabilities**
  - Persistent search provides function for clients to receive notification of changes that occur in the directory server by altering the standard LDAP search operation so that it does not end after the initial set of entries matching the search criteria are returned. Instead, LDAP clients can keep an active channel through which information about entries that change is communicated.
  - Filtered replication allows the directory administrator to control what data is allowed to be replicated to consumer servers by specifying which entries and which attributes are to be replicated, based on filters defined by the directory administrator.
  - Active Directory tool for synchronizing users and groups in Active Directory with IBM Tivoli Directory Server. Synchronization is one-way, from Active Directory to IBM Tivoli Directory Server.
  - The Directory White Pages application works like an online telephone directory and provides the ability to search, view, and manage user entries in an IBM Tivoli Directory Server 6.1 LDAP directory. Works by default with the standard IBM Tivoli Directory Server 6.1 schema, but also provides configuration features for integrating with existing IBM Tivoli Directory Server 6.1 directories containing customer-specified schema objects.
  - Additional matching rule and syntax support (24 syntaxes, 17 matching rules). Support has been added for new syntaxes and matching rules from RFCs 2252, 2256, and 3698. (Matching rules are not defined in any RFC, but are referenced in RFC 2798.)
  - New control to limit number of attribute values returned on a search
- **Proxy server enhancements**
  - Proxy fast failover/high-write consistency

- Support for password policy: the proxy server now provides full support for global password policy. Multiple password policies are supported in the proxy environment as long as the data is not partitioned.
- Customizable partitioning algorithm
- Support for single-partition LDAP transactions
- Improved **ddsetup** tool (performance and usability enhanced) for partitioning data to be loaded
- Where-is entry search allows administrators to locate the back-end server on which a given entry is stored or will be stored, using the proxy server's partitioning algorithm.
- Web Administration Tool support for proxy server groups

- **Client enhancements**
  - IBM Tivoli Directory Server JNDI Toolkit
    - Source code for commands **ldapsearch**, **ldapadd**, **ldapmodify**, and others.
    - Source code for TDS LDAP Extended Operations and Server Controls
    - Installation includes Java 5
    - SDK source includes Javadoc comments
  - Improved thread support in C LDAP Library. LDAP session handles can be safely shared by multiple threads.

- **New 64-bit servers**
  - Windows
  - Solaris (Sparc)
  - HP-UX (PA-RISC)
  - AMD64 Linux
  - zSeries, iSeries, and pSeries Linux

- **New user documentation**
  - Capacity planning information added to *Performance Tuning Guide*
  - Additions to the *Administration Guide*
    - Online backup and restore
    - High availability scenarios
    - Administration of new 6.1 features

Compatibility Specifications

The following standards are implemented in this release of IBM Tivoli Directory Server:

- RFC 1274 The COSINE and Internet X.500 Schema
- RFC 1777 Lightweight Directory Access Protocol (V2)
- RFC 1778 String Representation of Standard Attribute Syntax's
- RFC 1779 String Representation of Distinguished Names
- RFC 1823 LDAP Application Program Interface (V2)
- RFC 2052 A DNS RR for specifying the location of services (DNS SRV)
- RFC 2219 Use of DNS Aliases for Network Services
- RFC 2222 Simple Authentication and Security Layer (SASL)
- RFC 2247 Using Domains in LDAP/X.500 Distinguished Names
- RFC 2251 Lightweight Directory Access Protocol (V3)

- RFC 2252 Lightweight Directory Access Protocol (V3): Attribute Syntax Definitions
- RFC 2253 Lightweight Directory Access Protocol (v3): UTF-8 String Representation of Distinguished Names
- RFC 2254 The String Representation of LDAP Search Filters
- RFC 2255 The LDAP URL Format
- RFC 2256 A Summary of the X.500(96) User Schema for use with LDAPv3
- RFC 2596 Use of Language code in LDAP
- RFC 2696 LDAP Control Extension for Simple Paged Results Manipulation
- RFC 2829 Authentication Methods for LDAP RFC 2830, (V3) Extension for Transport Layer Security (TLS)
- RFC 2831 Using DIGEST authentication as a SASL Mechanism
- RFC 2849 The LDAP Data Interchange Format (LDIF) - Technical Specification
- RFC 2891 LDAP Control Extension for Server Side Sorting of Search Results
- The Open Group schema for liPerson and liOrganization (NAC/LIPS)
- RFC 2307 (Directory Schema Only) – Posix Unix Account authentication
- RFC 3673 All Operational Attributes

Supported languages

Translated server messages are provided on all supported operating systems.

The following language versions are provided on all supported operating systems: German, French, Italian, Spanish, Japanese, Korean, Portuguese, Simplified Chinese, Traditional Chinese.

On AIX only, the following additional language versions are available: Czech, Hungarian, Polish, Russian, Slovak.

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