IBM Tivoli Directory Integrator

Synchronize data across multiple repositories

Highlights

- Transforms, moves and synchronizes generic as well as identity data residing in heterogeneous directories, databases, files, collaborative systems and applications
- Helps accelerate deployment of IBM® Security Systems software, as well as other IBM infrastructure software
- Provides an intuitive graphical user interface for development, deployment and maintenance of synchronization rules
- Provides an open synchronization architecture that supports multivendor IT infrastructures
- Supports a broad set of platforms, including IBM AIX®, IBM System z®, Microsoft Windows, UNIX and Linux environments

Many organizations today have no single authoritative directory. Instead, companies deploy department-specific applications at all levels of the enterprise, resulting in dozens of application-specific directories that may contain related though not identical data. With accounts spread across heterogeneous applications and services, it can be difficult to identify and resolve conflicts among all the sources of identity or generic data—such as when a user's job title (and related permissions) is changed in one application but not in others, or when a data file is modified on a distributed server in a complex environment. Inconsistencies like these—when an employee leaves, for example—can increase the potential for security breaches and audit failures.

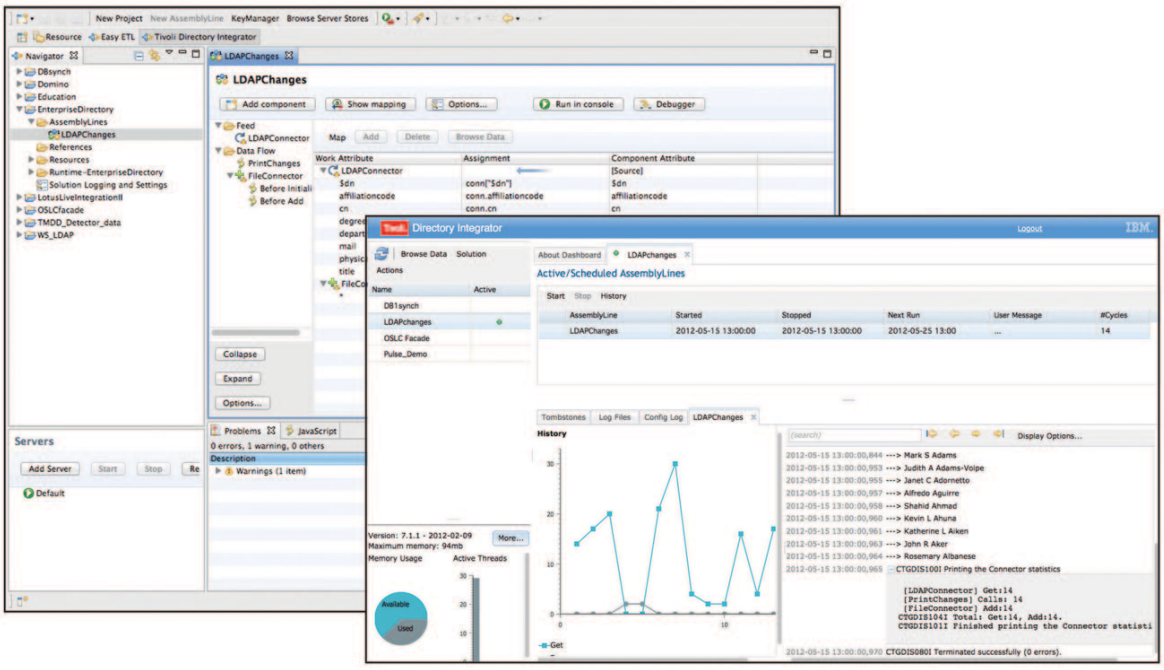
Maintaining data consistency across these multiple data repositories requires the ability to synchronize information quickly and efficiently. If an employee's name changes, for example, changing the status in one information store should initiate the same change in all other stores across your organization.

IBM Tivoli® Directory Integrator offers small and large organizations a cost-effective way to synchronize heterogeneous identity and generic data sources and build an automated, authoritative data infrastructure. By enabling you to maintain consistent and trusted data across multiple identity or generic resources, Tivoli Directory Integrator can help you leverage emerging, on-demand business models.

Automate and integrate identity data to help reduce costs

IBM Tivoli Directory Integrator Identity Edition helps organizations build an authoritative identity data infrastructure that helps optimize security and provide the trustworthy data required for cost-saving IT automation. With Tivoli Directory Integrator Identity Edition in place, the user identity data that applications require is updated automatically when the authoritative data sources are updated—even if that source is managed by another application in a different repository.

The flexible architecture enables both meta-directory as well as point-to-point deployments. As a meta-directory, Tivoli Directory Integrator Identity Edition synchronizes data that resides across IBM and non-IBM directories, databases, password stores, collaborative systems and applications. Consequently, it helps you maximize the accuracy of the data you maintain and reduce the costs associated with manual updates. When an authorized user makes a change to a definitive data store such as a human resources application or a telephone directory or private branch exchange, Tivoli Directory Integrator automatically detects the change and pushes the modification out to all the other databases and applications that store and use the same data.



IBM Tivoli Directory Integrator enables rapid integration development using intelligent, multidirectional data flows across multiple information stores.

When the software is deployed as a point-to-point solution, no new repository is required; identity data is merely copied and synchronized between existing systems with the necessary transformation occurring on the fly.

Synchronize generic data to improve data integrity in your infrastructure

As a synchronizer for diverse data from disparate sources, IBM Tivoli Directory Integrator General Purpose Edition provides the same deployment flexibility as Tivoli Directory Integrator Identity Edition. This version is provided for non-identity scenarios in which information must be copied and synchronized between two or more systems. This generic data integration tool is well-suited to handle a wide range of problems that might otherwise require custom coding and significantly more resources to address. Tivoli Directory Integrator General Purpose Edition can synchronize and transform data between widely different systems, such as files, databases, directories, message queues and web services, and can respond to infrastructure events including e-mail, Hypertext Transfer Protocol (HTTP) or Representational State Transfer (REST), Simple Network Management Protocol (SNMP), Transmission Control Protocol (TCP), message queues, web services and more.

For example, Tivoli Directory Integrator General Purpose Edition is useful for migrating data between systems, or for synchronizing legacy data where systems cannot be replaced or shut down. Additionally, Tivoli Directory Integrator can automatically transform files from one format to another. It can also react to changes to data in the infrastructure, such as modifications, additions and deletions, and can drive this information to systems that need to know about it. Ensuring that your data is consistent across the enterprise improves the integrity of the information.

In both editions, the decentralized architecture enables your local departments to manage the data they know best—and use the tools that make them most productive—while eliminating the expense of deploying and maintaining a centralized, proprietary data store.

Connect resources and respond to changes with great flexibility

Tivoli Directory Integrator relies on a flexible, open architecture that allows you to synchronize the data sources you already have in place. A dynamic synchronization layer between the data structure and the applications creates flexibility because it eliminates the need for an intermediate proprietary data store. If the firm requires a centralized "meta-view," Tivoli Directory Integrator can synchronize to any IBM or non-IBM data store—unlike other vendors that require their own proprietary architecture. For those companies that choose to deploy an enterprise directory solution, Tivoli Directory Integrator helps ease the process by connecting to the identity or generic data from the various repositories throughout the organization.

To enable rapid deployment and easy extension, Tivoli Directory Integrator uses intelligent, multidirectional data flows called "AssemblyLines," which are based on an incremental, component-based methodology. AssemblyLines can be shared, pooled and reused across all Tivoli Directory Integrator solutions deployed within the company. Tivoli Directory Integrator solutions can dynamically alter their configuration and behavior at run time based on external properties and provide asynchronous communications that can drive work between multiple AssemblyLines—and across multiple servers. Built-in connectors and parsers allow you to integrate a wide

range of systems. Tivoli Directory Integrator supports most standard protocols, transports, application programming interfaces (APIs) and formats, including:

- Extensible Markup Language (XML) and JavaScript Object Notation (JSON)
- Java Database Connectivity (JDBC)
- Lightweight Directory Access Protocol (LDAP)
- Java Message Service (JMS)
- Java Naming and Directory Interface (JNDI)
- HTTP/REST
- Web services

To flexibly respond to changes in a system, the event-driven engine enables real-time change detection, transformation and modified data propagation to other systems. Events can include arriving e-mails, records updated in databases or directories, incoming HTML pages from a web server or browser, arriving web services-based Simple Object Access Protocol (SOAP) messages and other types of events your users define.

Changes can be detected and extracted from:

- Files in XML, LDAP Data Interchange Format (LDIF), comma-separated values (CSV) or custom formats
- IBM Lotus® Domino® or IBM Lotus Notes®
- IBM Tivoli Directory Server
- Microsoft Active Directory
- Sun Java System Directory Server
- IBM Tivoli Directory Server for IBM z/OS® on System z
- Relational database management systems (RDBMS), including IBM DB2®, Oracle, Microsoft SQL and custom systems
- SAP enterprise resource planning (ERP) systems
- IBM Maximo®
- Custom data sources using the built-in delta-detection services

Take advantage of fast, simplified installation and management

Tivoli Directory Integrator provides an easy-to-use graphical development tool and web-based management console. The administrative management console simplifies monitoring of AssemblyLines, unifying even complex deployments with multiple servers into a single, customizable view. A library of prebuilt components, such as connectors, parsers, password interceptors and event-handling mechanisms, allows Tivoli Directory Integrator to integrate into a wide variety of environments with minimal disruptions. The plug-and-play functionality helps to drive quick time to value as the components facilitate rapid prototyping and implementation.

Additionally, the open framework based on Java technology enables you to extend virtually all of the integration components and provides easy access to a range of management tools that enable administrators to perform system configuration and send real-time notifications to external applications. The Action Manager application, integrated with the administrative management console, enables high-availability deployments by monitoring Tivoli Directory Integrator solutions and triggering customized actions, allowing you to quickly add failure detection and response features to your solutions, as well as customized health monitoring.

Benefit from flexibility in Tivoli Directory Integrator deployments

The flexibility of Tivoli Directory Integrator enables it to be used in a wide range of scenarios. The following examples demonstrate how Tivoli Directory Integrator can add value to your infrastructure.

One common problem shared by many organizations is the presence of numerous sources of identity data. Sometimes, a business need can require you to establish a new directory that is continuously maintained with information from the sources as data is modified there. Other times, the need may require all systems to have a minimum amount of information from all the other systems. Business needs will dictate the technical approach. In both scenarios, however, Tivoli Directory Integrator can be used to listen for changes in all systems, properly transform data to match the requirements of each individual system and ensure that valid data is propagated in near real time.

In another common scenario, data may need to be augmented with related data in another system. When an organization plans to create a web-based application for both employees and customers, several concerns must be considered. The externally facing application will most likely have its own authentication service in the demilitarized zone (DMZ) that is securely separated from the existing internal security systems. However, it needs to contain information about all employees, as well as customers. Furthermore, it is quite possible that additional information from internal ERP systems needs to be added to the user accounts. This could include customer details or internal organizational structures that enable the application to handle workflows in the correct manner. In this scenario, Tivoli Directory Integrator can securely put information about employees into the externally facing directory while creating new passwords for them, and can automatically send email to the employees with login credentials to the new enterprise application. Information from ERP systems can be extracted, augmented and added to the customer data in the same directory.

Why IBM?

IBM has designed Tivoli Directory Integrator to be easy to use, easy to deploy and able to generate a rapid return on your investment. Whether you are using the Identity Edition to manage user data or the General Purpose Edition for generic data, Tivoli Directory Integrator provides the flexibility to scale from small to very large deployments.

Tivoli Directory Integrator is designed to complement security solutions like IBM Tivoli Identity Manager and IBM Tivoli Federated Identity Manager for user provisioning, delegated administration and federation. Through tight integration with other IBM infrastructure software, including IBM WebSphere®, IBM Lotus Domino and IBM Lotus Connections middleware, and Tivoli management products such as IBM Tivoli Change and Configuration Management Database and IBM Tivoli Service Request Manager, Tivoli Directory Integrator can help you build the real-time, authoritative data foundation you require for on-demand services.

IBM Tivoli Directory Integrator at a glance

Supported platforms:

- IBM AIX 5.3, 6.1 and 7.1
- IBM i5/OS® version 6, release 1 and version 7, release 1
- IBM z/OS 1.10, 1.11 and 1.12
- Microsoft Windows Server 2003 and 2008 Standard and Enterprise Editions (IA32 and AMD64/EM64T)
- Sun Solaris 9 and 10 (32- and 64-bit SPARC)
- HP-UX 11i versions 2 (11.23) and 3 (32- and 64-bit PA-RISC, 64-bit Itanium)
- Linux:
  - Red Hat Enterprise Linux ES/AS 4.0, 5.0 and 6.0 on Intel (IA32 and AMD64/EM64T), System z and IBM POWER®
  - SUSE Linux Enterprise Server 10 and 11 on Intel (IA32 and AMD64/EM64T), System z and POWER
  - Red Flag Data Center 5.0 SP1/Asianix 2.0 SP1 on Intel IA32

For more information

To learn more about IBM Tivoli Directory Integrator and other software solutions from IBM, contact your IBM representative or IBM Business Partner, or visit: **ibm.com**/tivoli/solutions/security

About IBM Security Systems software

IBM Security offers one of the most advanced and integrated portfolios of enterprise security products and services. The portfolio, supported by world-renowned IBM X-FORCE® research and development, provides security intelligence to help organizations holistically protect their people, infrastructures, data and applications, offering solutions for identity and access management, database security, application development, risk management, endpoint management, network security and more. These solutions enable organizations to effectively manage risk and implement integrated security for mobile, cloud, social media and other enterprise business architectures. IBM operates one of the world's broadest security research, development and delivery organizations, monitors 13 billion security events per day in more than 130 countries, and holds more than 3,000 security patents.

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