

Naming and Directory Services in the Solaris™ 9 Operating Environment

Combining naming and directory technology with enhanced security.

Sun™ ONE
Open Net Environment



Key feature highlights

Enhanced offering using LDAP as an access protocol for naming services.

Offers a choice naming services protocols with of DNS, NIS, NIS+ and LDAP.

Integrates the Sun ONE Directory Server into the Solaris 9 Operating Environment.

Delivers enhanced LDAP client functionality with security

Supports access control information (ACIs) on the server for clients — users or applications.

Provides a NIS+ to LDAP migration tool.

Today's explosive levels of growth — in terms of bandwidth, networks, and digital devices — are driving an even greater shift towards a services model of computing. The Services on Demand approach moves the burden of a computing infrastructure from end users and their PCs to the organizations that provide the services. Since its inception in 1982, Sun has been driven by a singular vision — The Network Is The Computer™ — and has helped businesses harness the transforming power of the network in order to create, deploy, and deliver reliable Services on Demand.

As the foundation for the Sun™ Open Net Environment (Sun ONE) — Sun's vision, architecture, platform, and expertise for delivering Services on Demand — the Solaris™ 9 Operating Environment provides an integrated yet open architecture for building and deploying Services on Demand. The Solaris 9 Operating Environment (OE) offers new levels of performance in scalability, availability, manageability, and security, and delivers a complete and highly refined environment designed to enable customers to increase service levels while decreasing costs and reducing IT risks.

Solaris Naming and Directory Services

Solaris Naming and Directory Services combine standard naming and directory technology with enhanced security to provide a comprehensive and reliable naming service. The Solaris 9 Operating Environment supports the Lightweight Directory Access Protocol (LDAP) as an access protocol for naming services.

LDAP is an Internet standard protocol that delivers a robust set of features for naming services, data storage, and searching. It is capable of supporting a diverse set of applications. Apart from update and access capabilities, LDAP also offers a rich set of features for searching.

In addition to LDAP support, Solaris software continues to support the Domain Name Service (DNS), Network Information Service (NIS), and NIS+ protocols. This provides businesses with a variety of choices in

the area of naming and directory services when planning their computer networks.

LDAP as a Naming Service

The Solaris 9 Operating Environment lets you define information such as user names, host names, passwords, and other network resources on any directory server supporting the LDAP v3 protocol, for example, the Sun ONE Directory Server (formerly iPlanet™ Directory Server). The LDAP server stores this information in a hierarchical namespace called a Directory Information Tree (DIT). The DIT consists of entries that are composed of attribute-value pairs. Each attribute has a type and can have one or more values. Naming information, such as host names and passwords, will be stored in these entries as attribute values.

Integrated into the Solaris 9 Operating Environment, the Sun ONE Directory Server 5.1 provides a rich feature set that makes it a leading directory deployment platform.

Integrated Sun ONE Directory Server v5.1

The directory server is the fundamental building block for building a network identity and access management infrastructure. The Sun ONE Directory Server 5.1 is integrated into the Solaris 9 Operating Environment. It provides a rich feature set that makes it a leading directory deployment platform. In addition to improved reliability and scalability, the Sun ONE Directory Server also provides support for:

- Two-way multimaster replication
- Chaining
- Multiple database back-end support
- Security: DIGEST-MD5 support
- IPv6 support

The Sun ONE Directory Server 5.1 supports roles that better address scalability issues for large groups, and is based on dynamic groups. Ease of user administration is also included through the use of role-based templates.

Secure LDAP Client

In the Solaris 9 Operating Environment, secure LDAP clients can use the LDAP v3 protocol to access naming information from LDAP servers. The LDAP server must support the object classes and attributes that map the Network Information Service model onto LDAP. Several schemas related to Solaris processes, extended accounting, and more are also supported.

The Solaris 9 secure LDAP client incorporates several key enhancements to the Solaris 8 LDAP client. Solaris software clients can now authenticate to the LDAP server using any of the following authentication methods:

- Simple
- SASL/CRAM-MD5
- SASL/DIGEST-MD5
- SSL/TLS 1.0

The secure LDAP client in the Solaris 9 Operating Environment also supports a standardized configuration profile and has complete backward compatibility with the Solaris 8 client. New commands have been added to provide more sophisticated entry-adds and configuration.

Additional protection is provided through access control, allowing the server to grant access for certain containers and/or entries. Access control is specified in the form of access control information (ACIs) on the server. Access rights for the directory objects can be specified as read and write, with these rights determining what the clients can do to or with the objects. Clients may be users or applications.

LDAP Support in Solaris Management Console

The Solaris 9 Operating Environment provides the ability to manage user ID, role-based access control, groups, and other elements that are stored in LDAP through Solaris Management Console software. Solaris Management Console allows one location to manage all user and user security elements regardless of the naming service in use. Solaris Management Console supports files, NIS, NIS+, and LDAP in the Solaris 9 Operating Environment, and is also the same administration used for both Solaris 9 and Trusted Solaris™ 8 platforms.

Migration Tools from NIS+ to LDAP

The Solaris 9 Operating Environment features migration tools from NIS+ to LDAP. Migration from NIS+ to LDAP is a two-step process; data migration and client migration. The migration tool provides mechanisms for both.

- **Data Migration:** The migration tool is a gateway that can reside separately from the server and provides synchronization tools that allow for smooth data migration from an NIS+ server to an LDAP server.
- **Client Migration:** Client Migration is the more difficult part of the migration process due to the sheer number of clients involved. The gateway also provides the ability for NIS+ clients to communicate to the LDAP server transparently. This allows for phased migration of clients being native LDAP clients.

End-of-Feature Announcement for NIS+

The Solaris 9 Operating Environment also features the end-of-feature announcement for NIS+. However, NIS+ will continue to ship and be supported in every update of Solaris 9 software. For details of what the end-of-feature announcement means to you, please visit sun.com/directory/nisplus/transition.html.

Continued Support for NIS

NIS is a widely deployed and reliable distributed naming service. Sun is committed to delivering and supporting NIS through Solaris 9 software and its updates. However, it is Sun's stated strategic direction to move to LDAP-based naming services.

Through products and services, Sun is enabling customers to make the transition to LDAP-based naming services. Once these transitions are well underway, Sun will evaluate the appropriate time to formally announce the transition plan for NIS. It is likely that our plan will follow the one for NIS+, modified by experiences gained during that transition.

Support for DNS BIND 8.2.4

The Solaris 9 Operating Environment supports the BIND 8.2.4 implementation of DNS. DNS is the standard method for mapping Internet domain names to IP addresses. BIND 8.2.4 has several improvements over earlier releases:

- Several bugs fixes, including fixes for CERT advisory CA-2001-02
- Bug fixes in IXFR (Incremental Zone Transfer) and TSIG (transaction signature)
- A new troubleshooting/query tool dig; dig, is part of ISC's BIND release and is a comprehensive tool for DNS troubleshooting
- New features for ndc — “ndc reload -noexpired” and “ndc status”
- TTL 0 (time to live) now allowed in zone files

Future Developments in Naming and Directory Services

In keeping with Solaris software's position as the market leader in Internet operating environments, Sun is committed to enhancing Solaris Naming and Directory Services functionality. Future plans will include:

Security

The first phase of providing strong security mechanism has just been completed with the Solaris 9 Operating Environment's new enhanced security mechanisms:

- CRAM-MD5
- DIGEST-MD5
- SSL

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Solaris software will continue to aggressively push forward in this area with incorporation of Kerberos as an additional mechanism for authentication, data integrity, and confidentiality.

Interoperability

Sun is committed to the LDAP standard and plans to provide Solaris software with the ability to enable applications to use LDAP as a naming service. Interoperability between other directory offerings will also be an area in which Sun continues to push forward.

About Sun ONE

The Sun Open Net Environment (Sun ONE) is Sun's vision, architecture, platform, and expertise for delivering Services on Demand today and in the future. Based on open standards such as Java™ and XML technology, Sun ONE provides a highly scalable and robust framework for building and deploying a variety of Services on Demand — from traditional Web-based applications to future context-aware Web services. By simplifying the way Web services are created, assembled, and deployed, the Sun ONE platform can enhance productivity, speed time to market, and increase business opportunities for enterprises worldwide.

System Requirements

Solaris Naming and Directory Services is a feature of the Solaris Operating Environment

For More Information

To learn more about Solaris Naming and Directory Service and the Solaris 9 Operating Environment, visit sun.com/solaris.

For additional information on Sun ONE, visit sun.com/sunone.

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