Domino 4.6 Server Overview
by Barbara Burch

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Lotus Domino 4.6 unveils the server's expanded support of open Internet standards as well as improvements for developing Web applications and making the server easier to use. The main features include:

- Support for key Internet mail and directory standards -- including SMTP, MIME, POP3, IMAP, LDAP, and NNTP -- for standards-based access to Domino mail, directories, and databases.

- An updated Web server, with support for HTTP 1.1 and SSL 3.0, and enhancements for developing and designing interactive Web applications, including support for Java 1.1 agents. Release 4.6 also includes improved support for accessing Domino-based mail from a browser.

- Simplified server setup and administration, including a new server setup database and a new Web-based server administration tool. Release 4.6 also includes improved Windows NT integration features for administrators, and an administration-only client.

The Domino server is available in two configurations: the Lotus Domino 4.6 Mail server, a complete messaging server, and the full Domino server, which combines the messaging functionality of the Domino Mail server with the power of Internet and intranet application development.

Although you can use any Notes client with the Domino 4.6 server, you can only access the full Web application design capabilities from the Notes Designer for Domino 4.6 client.

Taking a closer look at Domino 4.6
With its support of open Internet standards, you can now access the Domino 4.6 server from any number of clients -- from Web browsers to news readers to Internet mail clients to the Notes client. Making Notes data available to standards-based Internet clients is one of the main goals for Domino 4.6, says Susan Nesson, general manager of server products. "We're in a climate where everyone wants things to inter-operate." In response to the popularity of various protocols in the customer base and in the competition, the Domino 4.6 server supports a wide range of open Internet standards, including SMTP, MIME, POP3, IMAP, LDAP, and NNTP.

SMTP and MIME support
The first two protocols we'll discuss, SMTP and MIME, involve the underlying structure of Internet mail -- how to get it from point A to point B, and how the information in the message actually appears. To transfer mail reliably and efficiently, the Simple Mail Transfer Protocol (SMTP) defines mechanisms for relaying mail between networks on the Internet. A message can go through multiple SMTP servers to reach an ultimate destination host and mailbox. To allow the message to be more than just text, Domino supports the Multipurpose Internet Mail Extensions (MIME). The MIME standard "extends" the format of messages to allow for audio, video, international character sets, and multi-part messages.

To implement these protocols, Domino includes the SMTP/MIME Message Transfer Agent (MTA). Available as a separate component in Release 4.5, the SMTP/MIME MTA is now fully integrated with Domino 4.6, and can be easily configured during the new server setup.

POP3 and IMAP support
Moving past how Domino transfers Internet messages, let's discuss the Internet mail clients you can use to access those messages. Domino can host Internet mail files for both POP3 and IMAP clients. The older Post Office Protocol version 3 (POP3) allows for clients to retrieve messages from a server, but doesn't provide for any manipulation of the mail on the server. POP3 clients simply download their mail, and it is

then deleted on the server. Common POP3 clients include Microsoft Internet Explorer, Netscape Navigator, and Eudora Pro. (Domino 4.5 supported POP3.)

In contrast, the Internet Message Access Protocol (IMAP) allows for clients to access and manipulate mail messages on a server. Among other things, IMAP includes operations for creating, deleting, and renaming remote message folders, called "mailboxes." With Domino 4.6, you can use any IMAP client to access your mail. Notes folders appear as IMAP mailboxes, and vice versa. Common IMAP clients include Microsoft Internet Explorer 4.0, Netscape Communicator 4.0, and the future Notes 5.0 client. To access this feature, users must upgrade their mail file with the MAIL46.NTF template, and the file must be explicitly enabled for IMAP use.

The following screens show how Domino-based IMAP mail appears when accessed from Netscape Communicator. The first screen shows the IMAP mailboxes, and the second screen shows how mail appears within the Inbox.
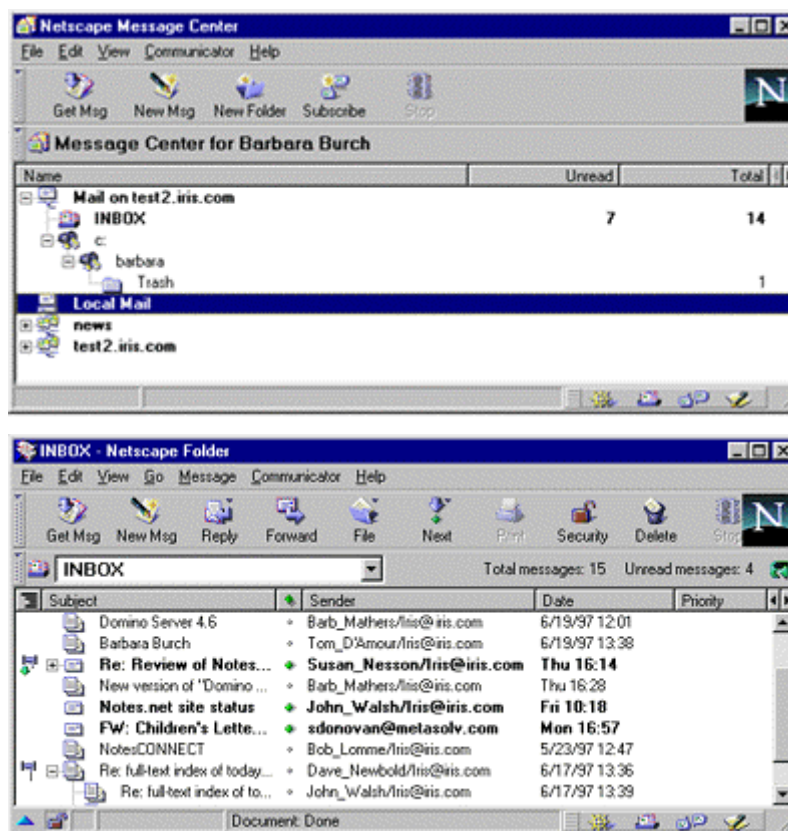
Both POP3 and IMAP rely on the SMTP/MIME MTA for transferring messages. A new feature in Domino 4.6 is to allow these messages to route through the Notes infrastructure without losing their original MIME format. To do this, Domino 4.6 provides flexibility in the ways that e-mail messages are stored, allowing the system to be configured for the best performance and message fidelity. Using the new "Internet message storage" field in their Person documents in the Public Address Book, users can specify to convert Internet messages to Notes format, to both convert messages to Notes format and retain the original Internet message, or to store the Internet format only. The Notes format offers the best performance for Notes users, and the Internet Mail format offers the best performance for POP3 and IMAP users, because the full fidelity of the MIME message is retained. The POP3 or IMAP client retrieves the original MIME/HTML message. This also allows the client to retrieve messages that were encrypted with Internet encryption, like S/MIME.

The following screen shows a message with both the Notes format and an attachment containing the original MIME message.
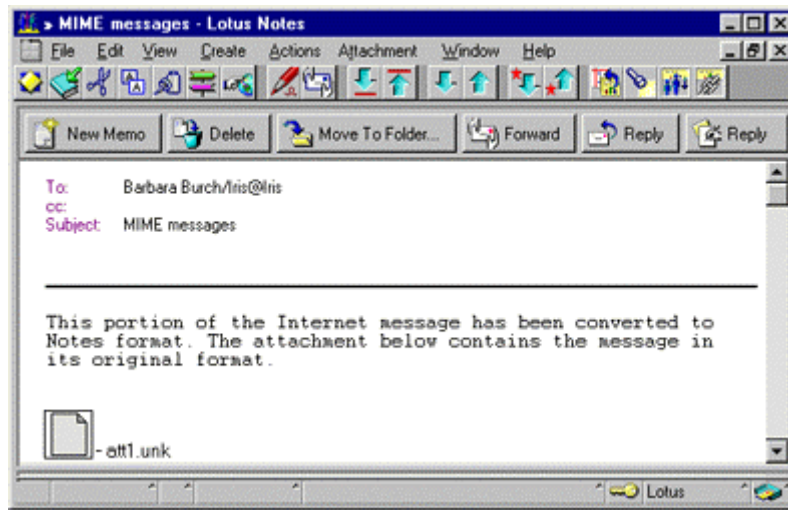
LDAP support

As another component for messaging, Domino 4.6 supports Lightweight Directory Access Protocol (LDAP) so that users can easily search directories for information, such as addresses. LDAP makes directory information in the Public Address Book available for searching over TCP/IP. This means that users of LDAP-enabled applications can retrieve e-mail addresses, telephone and fax numbers, postal addresses, and so on. For example, an Internet user could look up the e-mail address for your vice president of marketing without knowing her name or location. With LDAP, users in your organization can access your Public Address Book from a browser as easily as from a Notes client. You can also configure the Domino server to search other LDAP servers when performing a search for a user. Common LDAP clients include Microsoft Internet Explorer and Netscape Communicator. To set up this feature, you must upgrade your Public Address Books and Master Address Book (if you are using it) to the new 4.6 template. If you want to change the default settings, you can configure LDAP in the Server - Domain document and Master Address Book.

The following screen shows a directory search of the Domino Public Address Book from Netscape Communicator.
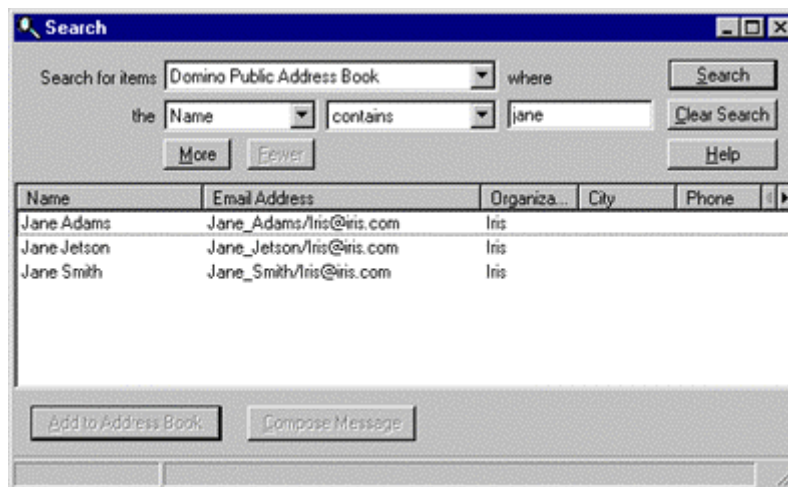
NNTP support

To address a different Internet need, Domino 4.6 adds support for NNTP, so that you can host Internet news discussions on your server. The Network News Transfer Protocol (NNTP) allows users to read and post articles in online discussion groups, referred to as newsgroups. NNTP also specifies a mechanism for exchanging news articles between Internet servers, and makes few demands on the structure, content, or storage of the articles. With the Domino NNTP server, you can host both USENET discussions that span the Internet or discussions in private newsgroups created within your organization. For example, users might want to participate in USENET groups related to your industry. Domino can receive content from Internet NNTP servers, such as the USENET servers, via server-to-server "replication," or news feeds. Common NNTP clients include, again, Microsoft Internet Explorer and Netscape Communicator. To set up NNTP, you simply load the NNTP server task and configure the NNTP section of the Server Configuration document.

The following screens show a Domino NNTP server accessed from Netscape Communicator, and how a newsgroup discussion appears on the Notes client.
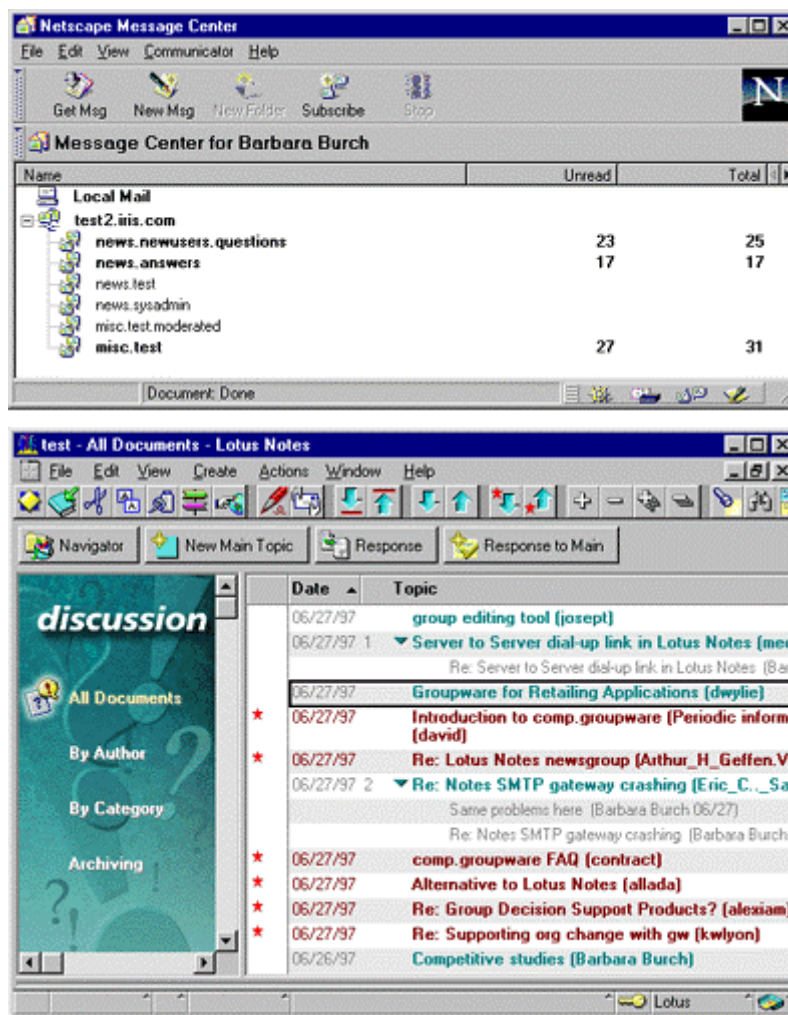

Enhancements for "Working the Web"

Domino 4.6 also includes an updated Web server, with support for HTTP 1.1 and SSL 3.0. The Web server is faster and provides enhancements for designing interactive applications, including support for the new Notes Designer for Domino 4.6 client and support for Java 1.1 agents. In addition, users can now use the

new Web mail template to access Domino-based mail, calendar and scheduling features, and task management features from a browser.

In addition to its own security model, Domino uses Secure Sockets Layer (SSL) 3.0 to encrypt and protect transactions between Internet users and Domino servers. Domino can validate X.509 client certificates, typically stored in a user's browser and transmitted during the initial SSL handshake with a server. Also, Domino can act as a Certifying Authority (CA), so you can add security to internal intranet applications and handle certificate requests from Domino server administrators within your company. (A CA issues certificates that are used during SSL transactions to verify the identity of servers and clients.)

For developing interactive applications, Domino 4.6 improves how clickable form elements, such as buttons, action hotspots, and embedded navigators, are handled for Web users. Basically, forms delivered through the HTTP server behave more like forms in Notes -- formulas behind the clickable elements are evaluated when a user actually clicks on them, rather than when the document is displayed. Now, you can add multiple submit buttons to a form, create buttons from images, add side-effects to a button (like setting fields in documents), and include regions in navigators that can submit documents. Much of this new functionality can only work properly from a JavaScript browser, so you can specify if a database is JavaScript-enabled via a checkbox in the database properties pane. (The button behavior from earlier releases of Domino is still supported.)
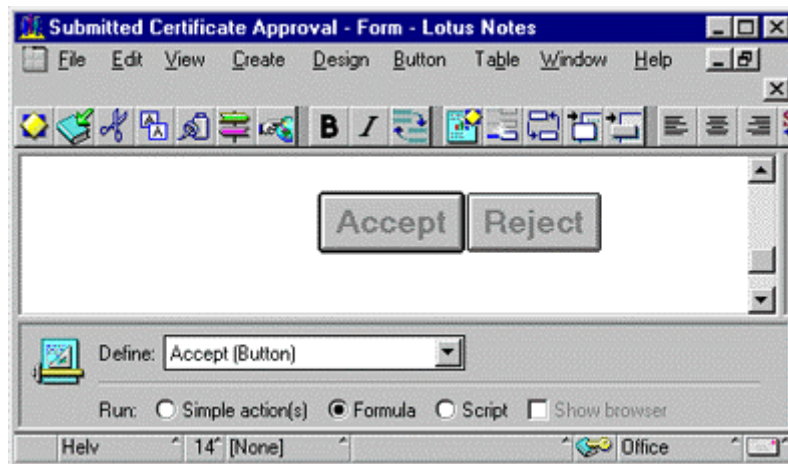
As another plus for application developers, Domino 4.6 includes support for agents written in Java as well as in LotusScript. You can now use the Notes Java interface to manipulate all the same back-end classes as you currently have in LotusScript. This means that Java agents can access Notes databases directly using the Notes Java classes. The Java agents must run on a machine where Notes is installed, and run only within a Notes-supplied Java runtime.

Other major enhancements for developing applications include: agent enhancements that allow you to run agents on any server and control agent execution privileges; new LotusScript classes for font styles; and support for folder references in NSF (to allow users to determine what folders, if any, a document is in, given only the document itself as a starting point).

Easier setup and administration
All of the new features we've been discussing mean nothing if you're not even able to get your server up and running. So, for Domino 4.6, the server administration team led by Art Thomas was charged with making server setup and administration easier.

One result was the new server setup database, which according to Thomas, targets people who are new to Notes and don't yet understand all the concepts. (Even so, the streamlined setup may also prove useful to

more experienced users.) The first time you try to start Domino 4.6, you'll encounter the server setup database. The database guides you through the setup process, giving you hints for naming things, enabling multiple network ports that are available, setting up the SMTP MTA, and enabling other server tasks, such as HTTP, NNTP, and so on. If you're a new user, you can choose to do a "Quick and Easy Setup" to simply choose the capabilities of the server and use default settings; or if you're more experienced, you can use "Advanced Setup" to specify the exact settings for your server.
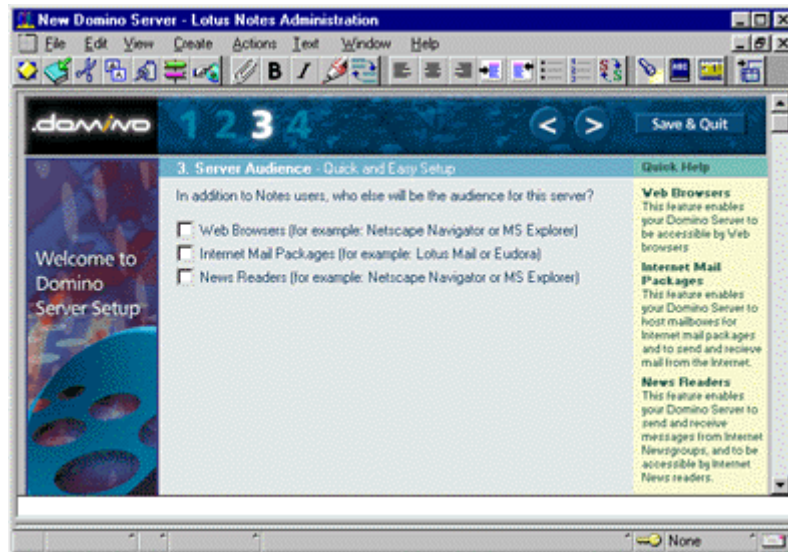
If an error occurs during the server setup, you are brought back to the setup database so you can correct a setting. (Previous releases required you to re-start the entire setup.) In addition, the configuration document is saved in the database so you can reference it later. You can also directly launch the server or register users for the server from the setup database. After setting up a new Domino server, the first time you start the server, statistic and event monitors will be automatically generated. These monitors will alert you to abnormal conditions on the server.

Another tool for new users is the Web-based server administration database, which lets you administer your server using a browser. The tool targets users that are comfortable working in a browser (like Webmasters) and presents information in a graphical format. You can use the Web administration tool to do many common administration tasks, ranging from monitoring mail and server statistics to managing users, groups, and database access control lists (ACLs). The server you administer must be set up as a Web server, running the HTTP server task.

After making sure that you're listed in the database ACL as a manager, you can access the Web administration tool by typing the following URL into a browser:

http://*servername*/webadmin.nsf

where servername is the name of the Web server you want to administer (for example, http://myserver.company.com/webadmin.nsf). The Web administration tool prompts you for a name and HTTP password (specified in your Person document), and then opens to its home page.

Additional ease-of-use features in Domino 4.6 include an administration-only client that simplifies the user interface for server administrators, and more integration with the Windows NT User Manager. For example, you can now add and delete groups between Windows NT and Notes, register non-Notes users (such as Internet mail users) from Windows NT, and synchronize the Internet password with the Windows NT and/or Notes passwords. You can create a Notes group from a new or existing Windows NT group account, with the option of registering the group members as Notes users. If the Windows NT group contains other global groups as group members, you can also add these global groups to Notes, with the same option of registering their user members. For administrators who have not used the Windows NT directory synchronization features before, existing Windows NT users can be initially "synched" with Notes users to facilitate future synchronization operations, such as deleting and renaming users. For more information on using the Windows NT features, please access the Notes User Manager help file by choosing Help - Notes from within the Windows NT User Manager.

The Future

And for those interested in the future directions of Domino: "One of the most exciting things we are doing is to make it clear to the world that we own messaging", says Nesson. "This means adding more standards-based support and more of the features and functionality enjoyed by our cc:Mail customer base. We also have dramatic goals for improving scalability and performance, ease of administration and deployment, and Web application capabilities."