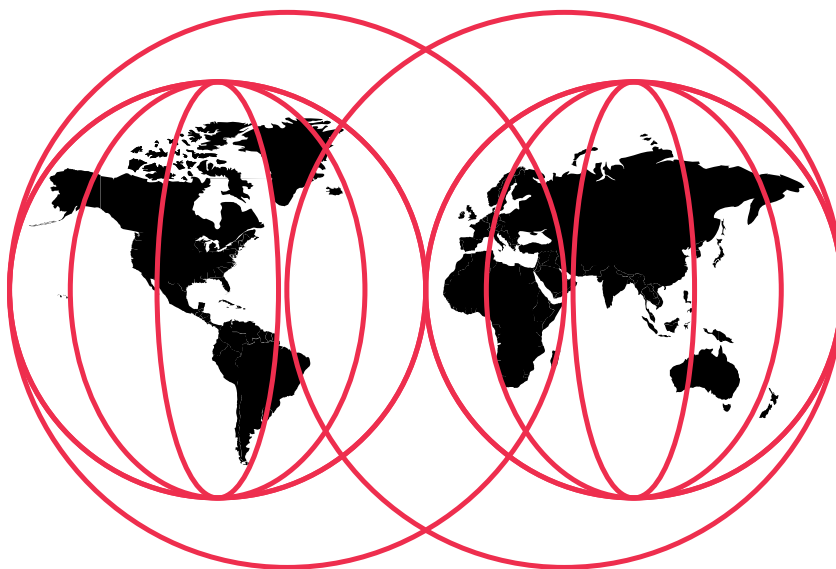


Lotus Notes and Domino Take Center Stage: Upgrading from R4 to R5

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International Technical Support Organization

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International Technical Support Organization

Lotus Notes and Domino Take Center Stage: Upgrading from R4 to R5

March 2000

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First Edition (March 2000)

This edition applies to Lotus Domino Release 5.x.

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Preface

This redbook explains how to upgrade your Notes/Domino environment from R4 to R5.

Part 1, “Taking a tour through the benefits of R5,” is a guide for decision makers and technical people who need a thorough understanding of the benefits of Domino R5 over Domino R4.x. We introduce the Notes R5 Client, Designer Client, and Administrator Client. Following that, we discuss the reliability, scalability, and performance of the Domino R5 server, including the new server features that will prove beneficial to your company.

Part 2, “Setting the stage: Planning for Domino R5,” emphasizes the need to invest time into project planning, which will minimize risk and ensure a smooth transition to R5. Standard project management concepts are presented, as well as practical tips intended to reduce the amount of research and work your team needs to do. We also give an overview of the rollout sequence for clients and servers.

Part 3, “Backstage: Behind the scenes of the Domino R5 server,” offers an inside look at the many services a Domino server can provide. This part focuses on the technical components of the Domino R5 server upgrade and the features available for the administrator to configure, once the Domino server is at R5 level. Aspects relating to directory services, messaging services, Domino as a Web server, security infrastructure, and domain search are covered.

Part 4, “Front row: Taking advantage of the Notes R5 client,” will help the Notes R4.5 or R4.6 client user understand how mail, calendar, to do lists, and personal address books have been enhanced. R5 tries to place a lot more of the actions that you can take right where you can see them. Last but not least, we take a look at the changes that have been made for the Web user in the areas of mail, calendar, and to do’s.

Part 5, “Spotlight on R5 administration,” documents daily procedures performed by the administrator, such as user administration and monitoring, and points out how those procedures in R5 differ from R4.

This redbook was written for customers, IBM and Lotus business partners, and the IBM and Lotus community, who are involved in upgrading Notes/Domino customers to Lotus Domino R5.

The team that wrote this redbook

This redbook was produced by a team of specialists from around the world working at the IBM/Lotus Integration Center in Westlake, Texas, on behalf of the International Technical Support Organization at Lotus Development in Cambridge, Massachusetts, USA.

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We would like to give special credits to the following people for their invaluable contributions to this project:

- Bill Kelly, IBM/Lotus Integration Center, USA
- Jan Ofiara, Lotus Professional Services, Germany
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- Jan Spinder, IBM Global Services, Australia
- Parastoo Vakili, Lotus Development, USA

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Part 1

Taking a tour through the benefits of R5

Since you are going to invest time in reading this redbook on Domino R4 to R5 transition, your company has probably already committed time and money in deploying Domino within the organization in the past. You may have experienced a change in corporate culture and work practices, as messaging, workflow and applications have become integral to the day-to-day operations of your company.

You have seen a return on investment of the initial implementation of Domino in the organization as staff have increased productivity. They can send e-mail from their desktop to another staff member, a supplier via the Internet, and they can confirm an order to a client using fax. Collaboration of team members has become commonplace making use of Domino applications and workflow, and reducing the need for costly meetings.

You know Domino is a good product, but why do you need to upgrade to R5? The servers are running smoothly, and your staff is too busy to accomplish an upgrade. Besides, how much will this cost?

Domino R5 offers greater message throughput, higher server availability, bigger databases and directories, faster agent execution, and the ability to support more concurrent users than ever before. These are just some of the areas where the R5 Domino server will reduce costs by making the server easier to administer and the desktop easier to manage.

Part 1 of this redbook, "Taking a tour through the benefits of R5," is a guide for decision makers and technical people who need a thorough understanding of the benefits of Domino R5 over Domino R4.x.

We introduce the Notes R5 Client and describe the new features that make the client not only easy to use but also very powerful.

Next, we discuss the Notes R5 Designer Client and cover some of the new design features available in R5 to expand the capabilities of your applications.

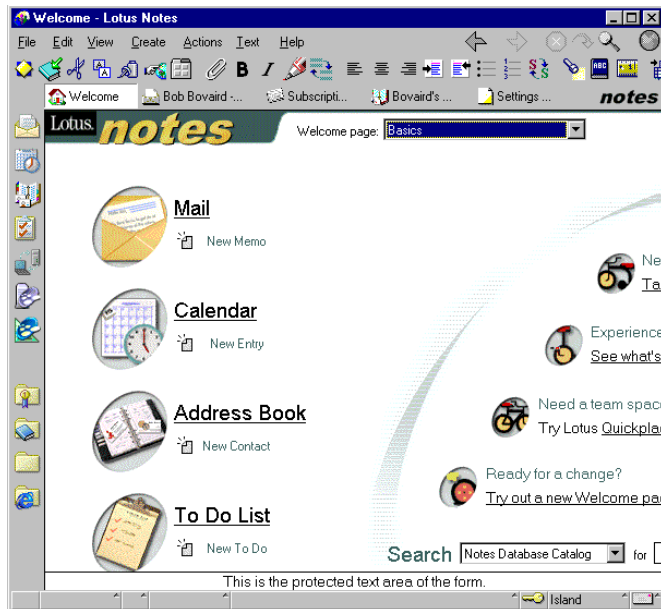
We then present the Notes R5 Administrator Client, with its newly enhanced interface for administrators. We outline some of the major features for administrators regarding user administration and server monitoring.

Finally, we discuss the reliability, scalability, and performance of the Domino R5 server, including the new server features that will prove beneficial to your company. An overview of Internet standards support is also given.

Chapter 1

Ease of using the Notes R5 client

The Notes R5 client interface has been completely redesigned. This interface looks and acts more like a browser, and integrates the regular Notes client function with access to the Web better than it did before. Many of the things you used to do in the Release 4 client are now only one mouse-click away.



Once you upgrade your Notes client to R5, you will be able to take advantage of a number of new and enhanced client features. This chapter presents an overview of some of these new features; a detailed discussion of how to use them is provided in Part 4.

Among the new features are the following:

- Bookmarks and the bookmark bar
- Navigational buttons
- Tasks
- Welcome page
- Headlines

- Accelerators
- Navigational aids
- Print preview
- Search
- SmartIcons and pull-down menus
- User preferences
- Windows
- Attachment viewers

Functional R5 enhancements that can be made available to the client, such as directory catalog, are discussed in Chapter 19, “Using new R5 features.” Group calendars are discussed in Chapter 16, “Calendar and scheduling.”

Tip This chapter describes in detail a number of client-specific features. Additional information about the features specific to the user interface can be found in the R5 help, or in the guided tour found under the Help pull-down menu. These features are available to you at all times unless noted otherwise.

Bookmarks and the bookmark bar

Bookmarks can be documents, database views, forms, Web pages, newsgroups, and so forth. A number of icons have been added to the Notes R5 client. Some of these icons are used as bookmarks for Web or Notes applications, and others are used for navigation.

You will notice a number of icons on the left-hand gutter of the Notes R5 client. This gutter is referred to as your bookmark bar. The bookmarks included here are available at all times, and eliminate the need to close or minimize your current window to switch to a different document or database, for example.

From top to bottom, the icons on the bookmark bar represent:

- Mail
- Calendar
- Address book
- To do list
- Replicator
- Sametime Connect
- Domino Administrator
- Domino Designer
- Favorite Bookmarks folder
- Databases folder
- More Bookmarks folder
- Internet Explorer links
- Netscape links



Mail, calendar, address book, and to do bookmarks

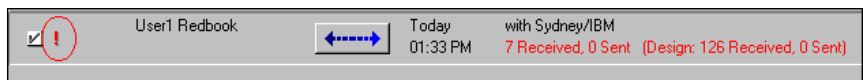
Starting at the top of the bookmark bar, you will find bookmarks for your mail, calendar, address book and to do list. These bookmarks will take you into the respective views in either your mail or your Personal Address Book.

Note If you are using a mail template prior to R5, selecting the calendar or the 'to do' bookmark takes you to the last view you used in your mail database. The R5 mail template contains the necessary frameset elements to make this function work properly. You will see similar behavior from the calendar and 'to do' hotspots on the Welcome page, which is discussed later in this chapter.

Replicator bookmark

The replicator bookmark will take you to your replicator page.

On the replicator page, you can now configure a higher priority replication schedule by right-clicking on the appropriate replica, and then selecting High priority from the pop-up menu. This will place a red exclamation mark next to the check box. Setting up high priority replication is discussed in Chapter 18, "Personal Address Book."



Sametime Connect bookmark

The next icon down appears dynamically if you have the Sametime Connect client installed on your computer, or if you have configured a Sametime Connect server in your current location document.

Sametime Connect allows you to collaborate with your colleagues in real time. You can see who is online and send quick messages to answer specific questions.

The Sametime Connect client can be downloaded from the Sametime Web site at www.sametime.com by using one of the following methods:

- Click the Try Sametime hotspot from the Basics Welcome page.
- Add a Sametime Connect server to your current location document and recycle your Notes client. Click the Sametime Connect bookmark on the bookmark bar. Note that the Sametime Connect server does not need to be a valid server name.

Tip If you add a Sametime Connect server to your current location document, you will have to recycle your Notes R5 client for it to be added to the bookmark bar. If you subsequently switch to a location document that does not have a Sametime Connect server configured prior to installing the Sametime Connect client, and recycle your Notes client, it will be removed from the bookmark bar. We recommend that you simply install the Sametime Connect client to eliminate confusion.

Tip The Sametime Connect application icon will not appear if you are upgrading from R5.0 or 5.01 to 5.02. According to the 5.02 release notes, to make it appear, you must delete the bookmark.nsf file and then restart the Notes client. However, if you have some Notes developer skills, you can refer to Appendix C, “Displaying Sametime Connect icon on the bookmark bar.” If you do not follow the instructions in Appendix C, we recommend you do not delete the bookmark.nsf file. All bookmarks that have been created or migrated will be lost.

Domino Designer and Administrator client bookmarks

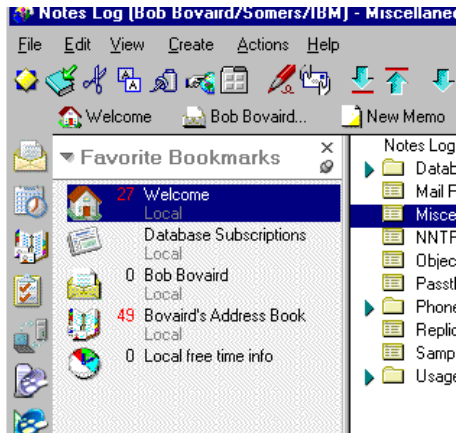
The next two icons dynamically appear depending on whether you have installed either the Domino Designer or Domino Administrator clients. For more information on these clients, refer to Chapter 2, “Ease of design” and Chapter 3, “Ease of administration.”

Favorite Bookmarks, Databases, and More Bookmarks

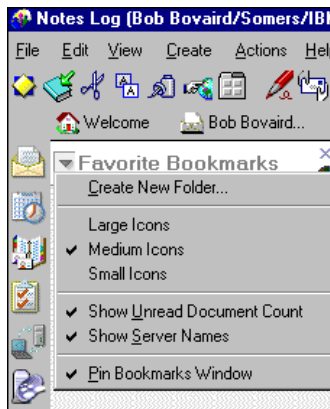
Favorite Bookmarks, Databases, and More Bookmarks are folders. Additional bookmarks or folders can be created and stored within these folders to make it easy to access Notes documents, views, databases, and Web pages.

Favorite Bookmarks

If you click a folder that resides on the bookmark bar, a list of bookmarks appears in the left frame. The name of the folder displays on the bookmark title bar. Once you select a bookmark from within that folder, the frame collapses and the selected database or Web site opens. You can access the selected database and still prevent the frame from collapsing by clicking the picture of the pin in the bookmark title bar, which “pins” the open folder to your desktop.



You can change several features on each bookmark bar to suit your own needs and preferences. Click the drop-down menu button on the left of the bookmark title bar for a list of items that can be modified. These include the size of the displayed icons, and whether to show unread document counts or server names. Show server names is particularly useful if you have multiple replicas of a Notes database. From this menu, you can also create new folders and use them to keep your Notes organized.



After installation, the Favorite Bookmarks folder contains the following bookmarks:

- Welcome
- Database subscriptions
- Mail
- Personal Address Book
- Local free time information

The upgrade process also automatically picks up bookmarks for some of the databases you opened from your Release 4.x client. Welcome and Database subscriptions are described in more detail later in this chapter. Mail is discussed in detail in Chapter 15, “Mail.” Personal Address Books are also discussed in detail in Chapter 18, “Personal Address Book.” The function of local free time information has been unchanged from Release 4.5 or 4.6.

Databases folder

The Databases folder contains the following bookmarks:

- Workspace
- Find a Database
- Browse for a database
- Notes 5 Help
- Personal Web Navigator (R5.0)

When you open the bookmark for the Workspace, it will display your old Notes 4.x desktop. If you are migrating to R5, a folder that corresponds to each tab you had on your old Notes workspace is added to the Databases folder. Each of these folders in turn contains a bookmark for each Notes database you had on your 4.x workspace tab.

We recommend that you get in the habit of using bookmarks instead of relying on your old Notes workspace. Bookmarks provide better navigation and organization. Furthermore, Lotus has indicated that bookmarks are the strategic direction for the product, and that the workspace may or may not be available in later releases of the Notes client.

As you open Notes databases, bookmarks will automatically be added to the bottom of the Database folder, unless you click the Bookmark button in that dialog box and specify the target folder. You can arrange database bookmarks as you wish, by simply dragging and dropping them in different folders, or changing their order within a folder.

Tip As you open up new Notes databases, bookmarks will also be added to the first tab of the old workspace, unless you have the workspace open to a specific tab. Prior to 5.0.1, this did not work reliably. Note that the icons on the workspace are not totally synchronized with your bookmarks. Bookmarks that you remove are not removed from the workspace, and bookmarks for Web pages will not be added to the workspace. Likewise, changes in the workspace interface are not reflected in the bookmarks interface: The addition or deletion of an icon on the workspace does not add or delete a corresponding bookmark.

Find a Database uses the Database Catalog function. Setting up the database catalog is discussed in Chapter 12, “System databases.” Using the database catalog is discussed in Chapter 19, “Using new R5 features.”

Browse for a Database performs the same task as choosing File - Database - Open.

Notes R5 Help launches a separate window. The R5 Help has been redesigned since Release 4.6. It is a two-pane design, with the left pane used for navigation and the right pane used for content.

Help is broken into three separate parts based on the audience: One for clients, one for designers, and one for administrators. Within each user category, it is further organized logically by task. A number of framesets are included for indexing, search and printed books (Administration only).

Tip The Favorite Bookmarks folder should be used for commonly used bookmarks, while the Databases folder is best used for infrequently accessed bookmarks.

More Bookmarks folder

The More Bookmarks folder contains three additional folders:

- Lotus links
- Internet search sites
- Create

The first two folders contain a fairly comprehensive list of Web links, and over time, you will probably want to add more of your own Internet and intranet links.

The Create folder contains some commonly used forms relating to your mail and Personal Address Book. When you use the bookmarks in the Create folder, you do not have to open the Notes database in order to, for instance, create a new memo or add a new to do task. You can add bookmarks to this folder for commonly used forms from any Notes database. Simply open up the form from any Notes database, drag and drop it into the Create folder, and then reuse it. Refer to R5 Help for various other ways to create bookmarks.



Netscape and Internet Explorer links

The next two icons dynamically appear depending on whether you have either Netscape or Internet Explorer installed on your workstation. When you launch your Notes client, the BOOKMARK.HTM file for each is cached, and the Web links are reflected as bookmarks in the respective folders.

If you add a URL to one of the links folders, the folder contents will not reflect that URL until you restart your Notes client.

The 5.0.2 release notes state that, for the Netscape icon to appear, Notes must be able to determine the directory where the Netscape bookmark file is installed (typically called BOOKMARK.HTM). On Windows 95/98 and NT, for most versions of Netscape, this is done by consulting the Windows Registry. For some newer versions of Netscape communicator, Netscape is using a new mechanism for tracking the location of the bookmark file rather than using the Registry.

Note Notes does not currently support this new format. If you have Netscape Communicator installed and the Netscape icon does not appear, you can specify the location of the Netscape user directory where the BOOKMARK.HTM resides by setting Netscape User Directory in NOTES.INI. As an example of a line you would add: **NetscapeUserDirectory=c:\Program Files\Users\Default.** We experienced this with Netscape Version 4.0.4. It required a recycle of the Notes client after the NOTES.INI change was made.

Some general information on bookmarks

You can create additional folders or bookmarks on the bookmark bar. The number of icons you can have on your bookmark bar is limited by the size of your screen since it is not scrollable. However, folders can contain any number of bookmarks. Folders are scrollable within the left frame.

Tip Bookmarks and stacked Workspace icons reference the last-accessed replica of a database. The Stack Replica Icon setting is selected during installation of R5, regardless of whether it is a new installation or an upgrade. If you select the Unstack the Replica setting from the workspace, the bookmarks may *NOT* reference the last-accessed replica of a database.

A bookmark option is also available when you choose File - Database - Open. You can also drag and drop tasks, described later in this chapter, to either your bookmark bar, a folder on that bar, or even a folder within a folder. Optionally, you can right-click when the task is open, and bookmark it.

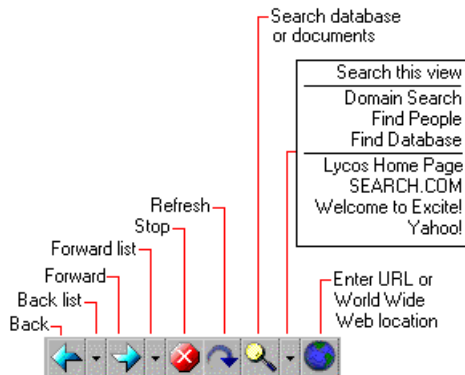
The colors and size of the icons in the bookmark bar can be controlled through User Preferences, where you can also change the icon associated with a bookmark, and rename, copy, or remove any bookmark.

Tip If a database or view is renamed on the server, the bookmark name will automatically be changed on your client when you open it from the bookmark. On the other hand, the title for a document which has been bookmarked will not change if the title in the original document was renamed.

Note If your screen resolution is set to 640 x 480, it is highly recommended that you increase it to 800 x 600, otherwise a number of icons will not display on your bookmark bar.

Navigational buttons

A number of navigational buttons have been added to the top of the Notes R5 client.



The appearance of the icons indicates what navigational steps are available at any given time. Each icon also responds dynamically to placing the cursor in this navigational bar. When a particular function is available, its

icon appears in full brightness in gray tones; otherwise it is dimmed. Then, when you point to an available function, its icon appears not only fully bright but also in color. For example, if you can go back to a previous page or task, the Back icon is dark grey; pointing to it will cause the icon to change to blue. If you do not have any pages or tasks to go back to, the color will remain dimmed.

The Stop icon only appears in color while a navigational step is being conducted. The step can be interrupted by clicking this button, which performs the same operation as pressing Control+Break in pre-Release 5 clients.

Tasks

In pre-Release R5 clients, each time you open up another Notes database or Web page, a new window is created. You could switch between windows by selecting the appropriate window from the Window pull-down menu. This was a two-mouse click process; with R5, this becomes a single-click process. The R5 client refers to windows as tasks. All open tasks appear on a task bar just beneath the SmartIcons bar. You can simply use your mouse and click once to switch to any task you have open.



The R5 client has also removed the nine-window restriction.

Welcome page

When you start the Notes R5 client for the first time, you will immediately notice that a Welcome page is presented in the main window; this page is your default home page. Hotspots are available here to bring you into your mail, calendar, address book or to do list. There are also hotspots that let you create a new memo, a new calendar entry, define a new contact or create a new to do item, without opening the corresponding database first. Additionally, you can take a tour, see what is new in R5, try Lotus Quickplace or Sametime, try out a new welcome page style, or perform a search in the Notes database catalog or on the Web.

Tip Any bookmark can be set to automatically become your home page. This can be easily done by right-clicking the bookmark and selecting the last option — Set Bookmark as Home Page. You can only have one home page. You may prefer to replace the Welcome page, and go directly into your mail or database subscriptions. However, using this option will only display one frame's worth of information.

When you upgrade to the R5 client, you will be brought automatically to the Welcome page. From here, you can access your old Notes 4.x desktop by selecting the Databases folder, then Workspace.

Note If you had a database in your 4.x client set to open automatically, you can only prevent that database from opening in R5 by manually editing the NOTES.INI file, and removing any lines that start with StartupDB=.

If you do not like the look or the content of the Basics Welcome page, you can select from a number of other styles. They include:

- Headlines with AOL My News
- Headlines with My Lycos
- Headlines with UK My Lycos
- Basics Plus
- Create a new page style

Note These options are language-specific. For example, the Spanish version of Notes will display Lycos España.

America Online (AOL) and Lycos both provide headlines, business, sports, weather, and other news customized for Notes users. You can create your own digital dashboard by tailoring the content of your home page using any of the existing page styles, or create a totally new style. The content elements you can select include:

- Basic tasks
- Inbox
- Calendar
- To do list
- Web page
- Quick links
- Search
- Database subscriptions

Tip The BOOKMARK.NSF file can be modified if your company wants to customize their own Welcome page. A developer could also include views of Notes databases and Java applets. It involves mostly pointing to and clicking design options rather than in-depth programming.

Headlines

Headlines are synonymous with database subscriptions. Headlines can be created by providers like Lycos or AOL, or you can create them through database subscriptions.

Database subscriptions actively monitor one or more databases for new content. If subscriptions are available for a particular R5 database, you will find an option on the Create pull-down menu called Subscription. You can then specify the name of the subscription and select the criteria for retrieving new or modified documents. You can also retrieve documents based on the author, the subject, or the size. Your mail database has additional selection criteria options.

Tip A developer of an application can choose to not permit subscriptions for a particular database. This is done through the database properties.

Subscriptions can be viewed from either the Welcome page or by selecting the 'Database Subscriptions' bookmark in the 'Favorite Bookmarks' folder. Once you are subscribed to one or more databases, you can manage the criteria for each of the databases. From the Welcome page, click the Customize hotspot on the upper right corner of the Database Subscriptions frame. When using the Database Subscriptions bookmark, this can be done by clicking the Subscription Options hotspot in the upper right corner of the frame. Once there, you can edit your subscriptions, or control whether each of the subscriptions is disabled or enabled. Your database subscriptions are stored in a file called HEADLINE.NSF which resides in your NOTES\DATA subdirectory on your client.

Accelerators

Tasks, bookmarks, and action bar buttons can now be accessed through the keyboard. To toggle to a different task, press the Enter key and the W key at the same time. When you let go, a number appears over each of the tasks. Enter the number of the desired task on your keyboard to switch to that task.

In a similar fashion, you can open up any bookmark or folder available in the bookmark bar by pressing Alt+B and then the number. When a Notes database is open, you can use an accelerator to perform the action. To do this, press Alt, and while holding it, select the number shown with the action bar button.



Note Many actions can be performed from the keyboard instead of the mouse by using a combination of keys; however, certain key combinations behave differently in R5 versus Release 4. For example, after selecting a database in the Open dialog box, pressing Alt+A adds it to the workspace in 4.x, but in R5, the same keystrokes open the About Document dialog box instead. In R5, Alt+B opens a dialog box that allows the user to add a bookmark for the database.

Navigational aids

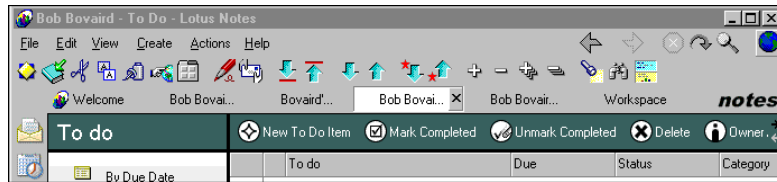
A number of navigational features have been added to most of the templates that Lotus provides to you with your R5 client. Some of the template designs will be updated for you when you upgrade your client, like your Personal Address Book, and others will require you to replace the design. Navigational aids that you will find in some of the R5 templates include:

- Scrollable action bar
- Action bar drop-down menus
- Application preferences
- Switchers
- Tables
- Wizards

Scrollable action bar

Prior to R5, if a Notes developer added a number of actions to the action bar, or used long titles for the actions, some of the actions may have been truncated. The action bar actions were also probably truncated if the user was either not using a full screen for Notes or had a 640 x 480 screen resolution.

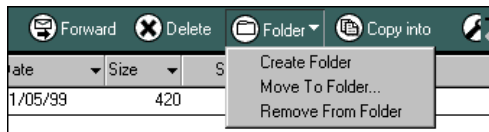
The R5 client has been enhanced to recognize if it has more actions than it can display, and it adds scrollable action bar arrows which give you the ability to scroll horizontally through the available actions.



Action bar drop-down menus

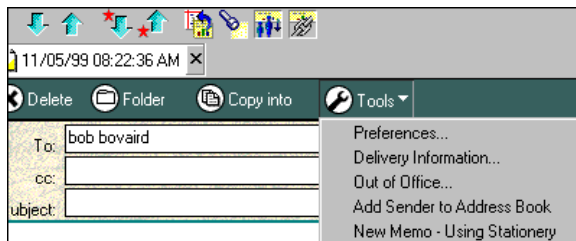
Many of the R5 templates provided by Lotus now use action bar buttons. When you hover over them, they display a down arrow. When the action that has an arrow is selected, a drop-down menu is provided. Drop-down menus are used extensively in the mail template, and many of the actions that, in Release 4.5 or 4.6, you could only perform using pull-down menus have been moved to the action bar in these drop-down menus.

In previous releases, the number of icons on the action bar was limited by the length and size of each action. The size was dictated by the letters used to describe the action. This was further constrained by your screen resolution. Therefore, only a few actions could be available on the action bar. This limitation has now been removed in R5.



Application preferences

Some of the templates which have been provided to you by Lotus use application preferences. These preferences are specific to the application and can usually be found by choosing the Actions - Tools pull-down menu or by clicking the Tools button on the action bar. These preferences ensure that the application acts the same way each time you enter it.



Move to folder

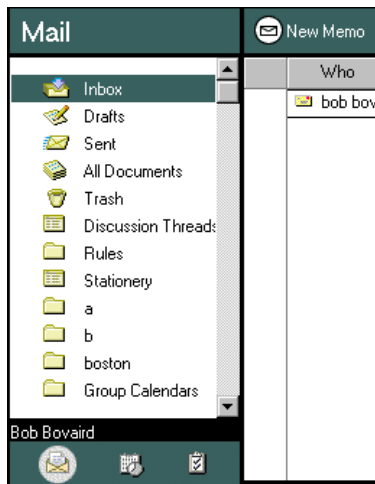
In the new Move to Folder dialog box, you can now quickly store documents in a specific folder by typing the first letter of the folder name. If you have multiple folders that begin with the same letter, reenter that same letter again and Notes will cycle through all of the folders that begin with that character.

If you type several letters in quick succession, Notes will search for that string of characters. You can determine what string it is searching for by looking on the status bar.

Note Right-clicking folders in your mail file will no longer give you the option to manipulate folders like it did in Release 4. In R5, choose Actions - Folder Options from the pull-down menu to work with folders.

Switchers

Many of the R5 templates provided by Lotus use switchers. Switchers are similar to what were called navigators in Release 4.x. Switchers bring you from one view in a database to another. These switchers are available in the bottom of your left frame. A white circular background is placed behind the selected active view. Switchers within that application are available at all times, regardless of the number of folders or documents in that left frame.



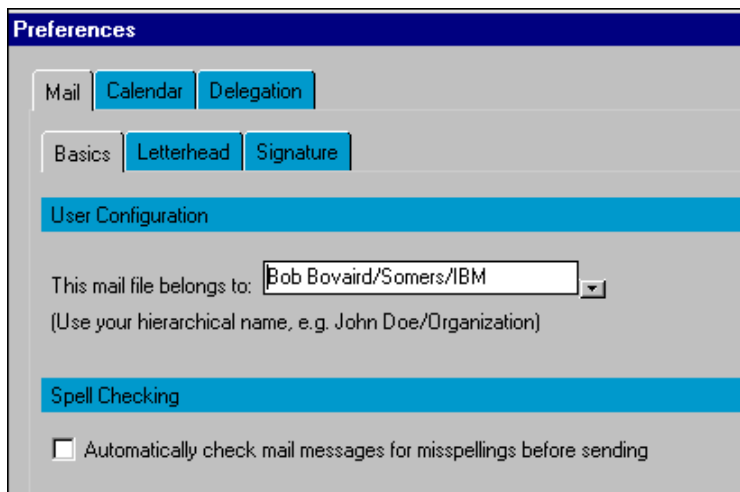
Tables

Table features in Release 4 were relatively limited. R5 allows users and developers to create four different types. The table types you can create are:

- Basic — Allows you to define the number of rows and columns.
- Tabbed — Displays each row as a clickable tab.
- Animated — Displays each row for a specified time period. Default timing is two seconds.
- Programmable — Displays one row based on a field value.

Tabbed tables are commonly used in many of the Lotus R5 templates.

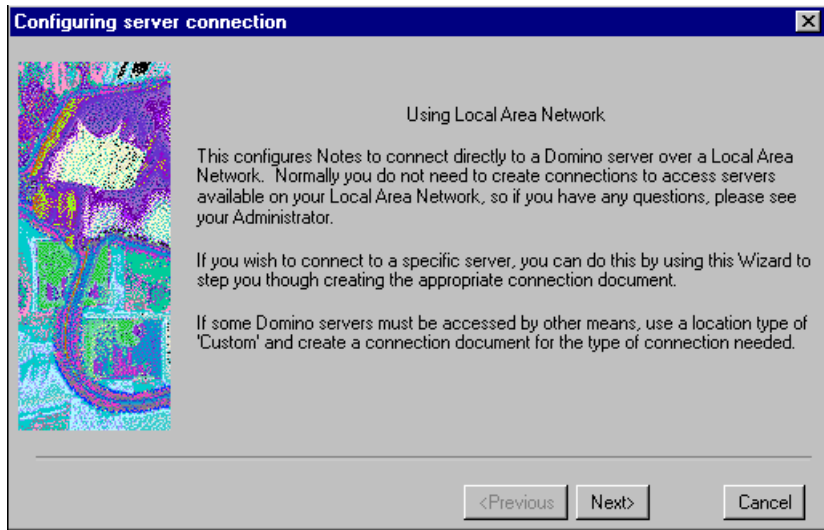
Preferences in your mail and in the directory use tabbed tables extensively.



Many of the tables available in the R5 client will not look the same when viewed by users running an older version of the client since the new features are unavailable to that client. The data will be present, but some people may perceive it as unreadable.

Wizards

Wizards have been added to some of the templates provided to you by Lotus. For example, the design of the R5 Personal Address Book contains a wizard which will step you through creating a connection configuration after you start building a new location document.



Print preview

The new Print dialog window enables you to preview the layout prior to printing. You can select from several different predefined print layouts, or create your own custom layout. This is especially useful for mail and calendar printing.

Search

The R5 search engine has been rewritten. Turning on search on a database is now as simple as clicking the magnifying glass located on the navigational bar. A basic search works similar to Release 4. However, if the Notes database is full-text indexed, a number of search criteria are available to you. They include:

- Date
- Author
- Field
- Form
- Multiple words

You can also specify some additional conditions for each of the above. A fuzzy search capability has been added, along with the ability to save or load a previous search.

SmartIcons and pull-down menus

You can customize whether to have the SmartIcons on or off for your R5 client. The SmartIcons operate in the same fashion as they did in Release 4.5; however, where you select this option from the pull-down menus has changed.

In fact, a number of the pull-down menus have changed from Release 4.5 to 5, but the changes are not as big as they were in the migration from Release 3 to 4. The Release 4.x client had a 'Release 3 Menu Finder' under the Help pull-down menu. The R5 client does not have an equivalent function for 4.x. The most noticeable change has been made to Notes preferences. All of the preferences are now consolidated under the File pull-down menu.

Tip In R5, SmartIcons are not visible by default. You will simply need to turn them on by choosing File - Tools - SmartIcon Settings and checking the Show Icon Bar check box. This is a change from Release 4.x.

User preferences

A number of changes have been made to the User Preferences dialog box.

Some settings are no longer available. They include:

- Enable local background indexing
- Typewriter fonts
- Large fonts (Refer to Appendix B, "How to turn on large fonts in R5.")
- Keep workstation in back when maximized (R5 client provides an alternative way to perform this action, or does it by default.)
- Monochrome display
- Keep all windows within main Notes window (R5 client provides an alternative way to perform this action, or does it by default.)
- Startup Database (R5 client provides an alternative way to perform this action, or does it by default.)
- International collation/casing

A large number of new user preferences have been added to the R5 client. These include:

- Icon color scheme
- Bookmark icon size
- Default fonts
- Check Subscriptions
- Enable JavaScript
- Enable Java access from JavaScript
- Enable JavaScript error dialogs
- Enable ActiveX in Notes browser
- Accept cookies
- Retain view column sorting
- Enable MS Office 97 SendTo to Notes
- Use Web palette
- Show extended accelerators
- Enable MIME save warning
- Enable Unicode display
- Launch the CORBA (DIIOP) server on preview in Web browser
- International regional override setting for content language
- International regional override setting for sorting
- International override setting for alternate name language
- Calendar view starts on
- Small calendar starts on
- Internet mail format
- Multilingual Internet mail
- Internet news format

Note The Retain view column sorting user preference is a particularly useful feature. Application developers have always had to make a choice which way users want columns to be sorted in a view. This feature allows you to override the developer's choice when you use a Notes database. The sort will be retained even if you exit the database.

Example: You are using the mail template that Lotus provides with the client, and you wish to change the way your inbox is sorted. The default date sort of your mail is oldest to newest, but you desire your mail to be sorted from newest to oldest. You can enable this feature, and then click the date column to set the sort. Every time you open your mail, your newest mail will be on the top within the view. Prior to R5, you needed to re-sort the date column every time you opened your mail.

Windows

Prior to R5, all windows were confined to the client Notes workspace and treated as one application. R5 allows you to have any number of separate windows. Each window can contain the same or different tasks. You must use the first Notes window to open up additional windows. You can then move these windows around the workspace, and arrange them in either a cascaded or tiling effect. This is particularly useful when performing comparisons.

Bookmarks can also be opened in separate windows. Simply right-click the bookmark from either the bookmark bar, the folder within the bookmark bar, or an active task, and select Open in New Window.

Attachment viewers

R5 now uses an entirely new viewer technology from KeyView for viewing attachments. The new viewers offer the following enhancements:

- Full object support for Lotus Freelance Graphics
- Support for .AVI and .MOV files (displays animation)
- Support for .DIB and .EPS files
- Support for SmartSuite R9 file formats
- Support for Microsoft Office 2000 beta file formats

Viewers for Window 95, Windows 97, and Windows NT are available for the following formats:

- Ami Pro 3.x (.SAM)
- Ami Draw (.SDW)
- Bitmap (.BMP)
- CCITT Group 3 Fax (.TIF)

- CompuServe (.GIF)
- Computer Graphics Metafile (.CGM)
- Executable file (.EXE)
- HTML (.HTM)
- JPEG file (.JPEG, .JPG)
- Lotus 1-2-3 3.0, 4.0, 5.0, 6.x, R9 (.WK*, .123)
- Lotus 1-2-3 97 and 98, R9 (.123)
- Lotus 1-2-3 for Macintosh
- Lotus 1-2-3 for OS/2 (.WG2)
- Lotus Freelance for OS/2 (.PRS)
- Lotus Freelance Graphics (.PRE, .PRZ)
- Lotus PIC (.PIC)
- Lotus Word Pro 96/97, R9 (.LWP)
- Microsoft Excel 2.x, 3.0, 4.0, 5.0, 7.0, 97, Office 2000 (.XLS)
- Microsoft PowerPoint 4.x, 7.0, 97 (.PPT)
- Microsoft Word for Macintosh 2.0, 3.0
- Microsoft Word for Windows 6.0, 7.0, 97, Office 2000 (.DOC)
- Paintbrush/DCX (multi-page PCX) (.PCX)
- PICT and PICT2 Graphics (.PCT)
- Revisable Form Text (.RFT)
- Rich Text Format (.RTF)
- Tagged Image File Format (.TIF and .EPS)
- Text file (.TXT)
- Windows Metafile Graphic (.WMF)
- WordPerfect 5.x, 6.x, 7.x
- WordPerfect 8
- WordPerfect for Macintosh 2.0, 3.0
- WordPerfect Graphics (.WPG)
- XyWrite
- ZIP file (.ZIP)

Summary

Lotus has made significant enhancements to the Notes client. Some of these enhancements are designed to simplify and improve navigation. Others allow the interface to act just like a browser, and to treat Lotus Notes databases as if they were Web pages.

Those enhancements also tightly integrate Web access into your desktop. Bookmarks are used extensively throughout the R5 client. Navigational buttons and bookmarks reduce the number of clicks required to get to your information. Headlines or database subscriptions bring the information that you want to see into a centralized 'digital dashboard.'

Chapter 2

Ease of design

This chapter outlines changes that occurred within Domino design in Domino R5 as it applies to the Domino Designer. We are going to describe the Domino Designer client and some of the design element changes.

The Domino Designer is an integrated application development environment that lets corporate developers and Web site designers create, manage, and deploy secure, interactive Web applications. It supports application deployment to both the Notes client and Web browsers. The Domino Designer also provides a consistent programming environment for all applicable languages, such as Lotus Notes, LotusScript, Java or JavaScript.

The goal of Domino R5 Designer is to provide support for rapid design of applications on the Domino server. It has accomplished this by bringing the design cycle for Domino Web- and Notes-accessed applications closer together.

If you are a Web developer, it is now easier to use HTML and JavaScript in your designs because the Designer supports them natively, meaning that a conversion process is no longer required. You can also use frames and Java applets, both supported by the Domino server, and available in Designer.

If you are a Notes developer familiar with application development in previous releases, you can now design more visually appealing applications that use the new features, and still leverage the strengths of the Domino infrastructure that you know so well.

In this chapter, we will briefly describe some of the design updates in Domino R5:

- R5 Designer development goals
- Taking a closer look at the R5 Designer
- R5 design interoperability
- New design elements
- Tables
- Design Synopsis
- Summary

Tip This chapter does not discuss how to design databases in Domino R5. For information on Domino R5 design, see the redbook *Lotus Domino R5.0 : A Developer's Handbook*, IBM form number SG24-5331, Lotus part number CC7EDNA.

R5 Designer development goals

The major goals implemented within Domino Designer are as follows:

- Usability — Reducing the “time to Web,” creating an intuitive set of design tools, providing more templates and examples (and documenting them), and incorporating additional Web design constructs.
- Openness to alternative tools — Adding new tools to enable partners to extend the design environment themselves and providing integration with third-party tools (for instance, NetObjects Fusion, IBM VisualAge for Java, or any HTML created with any HTML authoring tool).
- Mixed client design — Narrowing distinctions between the Notes client and Web browsers with a number of features, including native image support, the Web color palette, framesets, and pages, and establishing a common model for user interface (UI) events.
- Industry-standard programmability — Leveraging existing and emerging languages, including Java, JavaScript, and HTML 4.0 and maintaining the existing investment in LotusScript.
- Global applications — Integrating more closely with Domino Global WorkBench, which allows you to create multilingual databases that let users choose their preferred language from a list of available languages. In addition, you can tag Domino application design elements with a specific language attribute and automatically serve the application, in that language, to the client.

For more details on the Designer development goals, see the document written by Susan Florio, which is available on notes.net. The entire paper can be viewed at

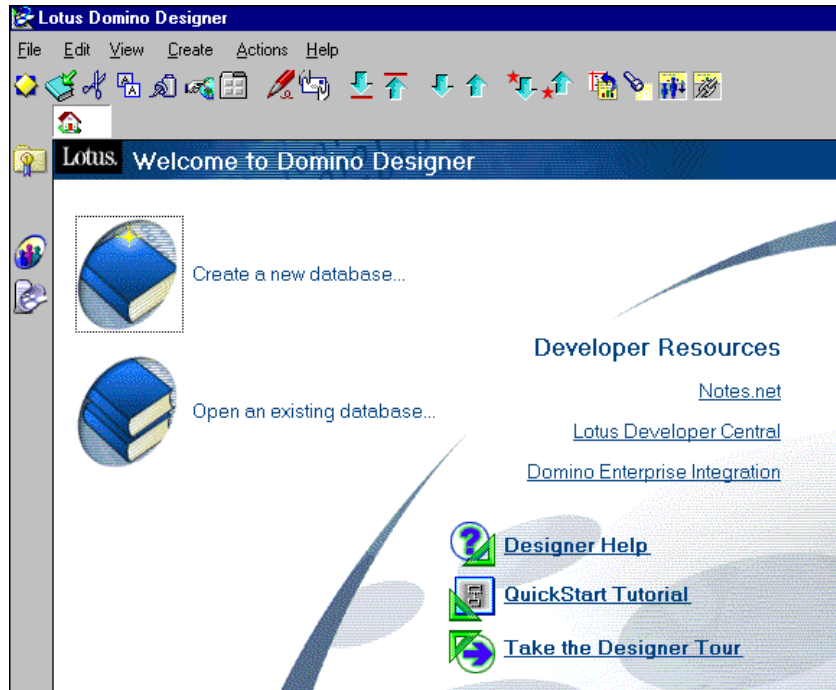
<http://www.notes.net/today.nsf/9148b29c86ffdc385256658007aaa0f/434b07cd529e7680852566320057ba12?OpenDocument>

Taking a closer look at the R5 Designer

The Designer bookmark icon will launch a separate window from your Notes R5 client.



From this window, you can either design a new database or open an existing one.



Once you create or open a database, the design pane on the left side of the screen contains bookmarks for the most recently used databases. When you expand a bookmark, all of the Designer tools and elements are also available from within the design list.

Design elements

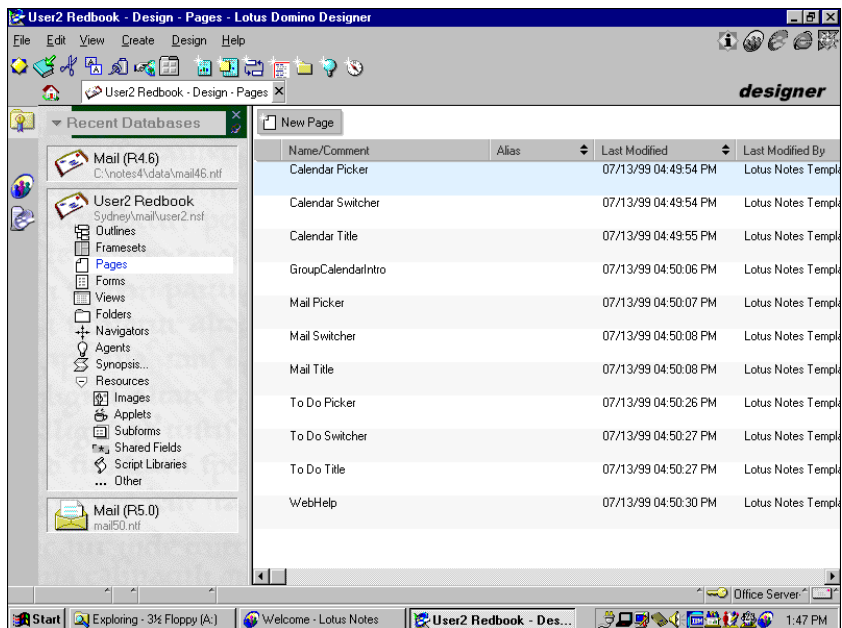
Design elements available in R5 Designer are as follows:

- Outlines
- Framesets
- Pages
- Forms

- Views
- Folders
- Navigators
- Agents
- Synopsis
- Resources
 - Images
 - Applets
 - Subforms
 - Shared Fields
 - Script Libraries
 - Other

Designer client interface

The following figure shows the new Designer with pages selected in the Design list and all the pages in the database appearing in the work pane on the right side of the screen. Also note the bookmarks in the left pane for the most recently opened databases.



The new environment provides you with a registry-sensitive icon population for previewing and testing applications in your target client, which can be Notes, Netscape Navigator Version 3.x, 4.x, and 5.x, or Internet Explorer 4.x. This means that based on information in the registry, icons for browsers appear in the top right corner of your screen, as follows:



You can click the preview icon from within the design environment and view the code you just wrote in the browser. You don't have to open the form to preview it in a browser: Just select it from your list of forms, and click the preview icon.

The user interface (UI) has been designed to be predominantly gray in color, so that it does not clash with the UI of the applications you create. Other usability enhancements include improved properties boxes, new toolbars and tool palettes, better rulers and grids, better keyboard access, absolute positioning of Web elements, better drag-and-drop capabilities, and more.

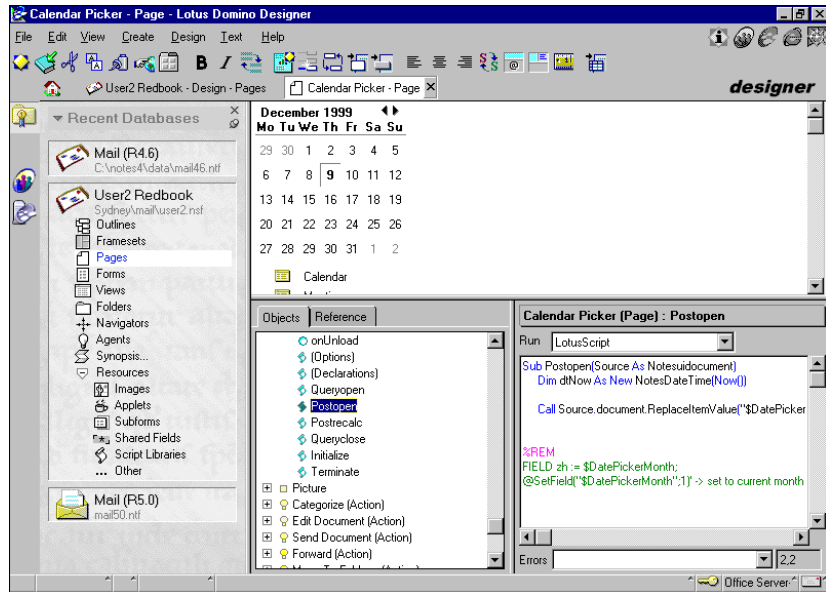
The design pane contains a window with the following two tabs:

- Objects
- Reference

Objects

The Objects tab allows you to select an object in your application, and view all the properties and events you have defined for that object. You can drill down even further by selecting an event and viewing all the code associated with that event in the design pane.

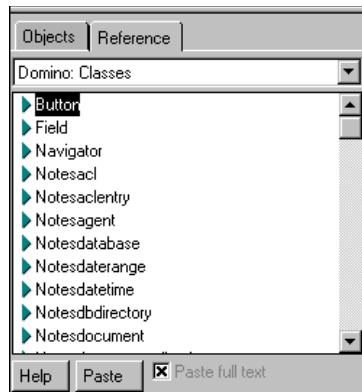
The following figure shows the Objects tab in the design pane.



Reference

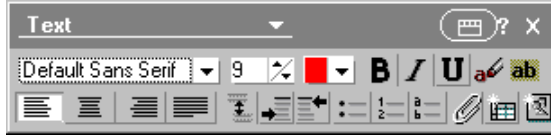
The Reference tab replaces the R4.x LotusScript browser window. It changes depending on the language you select. You can select the Formula language to view @Commands and Functions and fields, or JavaScript or Java to view information on the Document Object Model.

The following figure shows the Reference tab:



Properties boxes

Updated properties boxes throughout Designer R5 provide you with more options. The properties boxes are easier to use, and include functionality that allows you to change the properties box into a toolbar with important icons across it. This is done by selecting the toolbar icon.



R5 design interoperability

The following section covers aspects relating to design interoperability.

R5 design and ODS

The On-Disk Structure (ODS) version is unrelated to database design. Changing the ODS will not affect the database design, nor will changing the design affect the ODS. A database in R4 ODS can inherit its design from an R5 template and vice versa.

Creating a replica with an .NS4 extension will not prevent design changes when the two databases replicate. A replica with the .NS4 extension on an R5 server can inherit the design from an R5 template. Those changes can also replicate to a database on an R4 server.

R5 design elements can be viewed only by users using a Notes R5 client to access R5 databases on an R5 server

A user with an R4 client can access an R5 database on an R5 server, but will not see the R5 design elements.

Note It is not recommended to place an R5 design database on an R4 server.

Notes IDs

With Domino R5, the Notes client ID handling has changed. There is no longer a license type for a Domino R5 client. All IDs have the same rights as a Full Client had in Domino R4. Control of rights is the responsibility of the Domino Administrator via the database Access Control Lists (ACL) and distribution of the Notes R5 clients, which are specific to users, administrators, and designers.

Therefore, anyone who has the Domino Designer Client, and has Designer or higher rights to a database, is able to change the design of that database.

Caution Use the database catalog and Administration client to ensure that only your Domino designers have access rights to change the design of your databases.

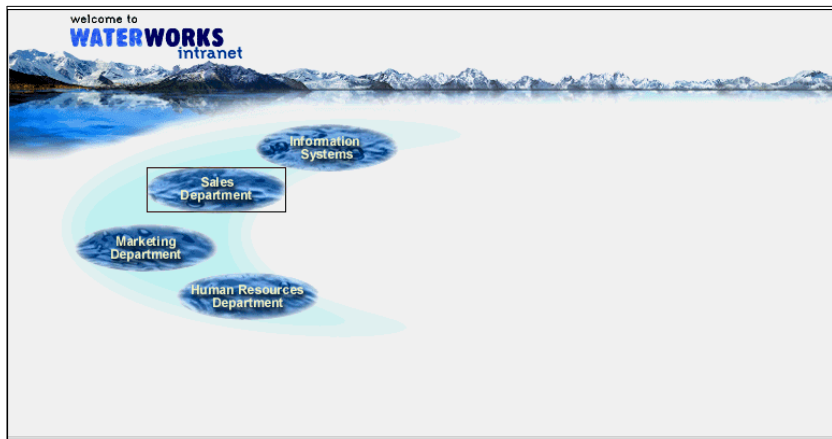
New design elements

The following section covers aspects relating to new design elements.

Pages

A page is a design element similar to a form. Unlike a form, it is intended for one-time use. A form is used to create documents. A page is used to display items to a user viewing a database or Web page.

The following screen shows a Web page with a graphic placed directly on it:



Pages can contain:

- Styled text
- Images
- Tables
- Links to objects
- Applets

Pages cannot contain:

- Fields
- Symbols
- Layout regions

A page is displayed to a user through a frameset, a link in an outline, a document link, or an HTML link.

Forms and pages

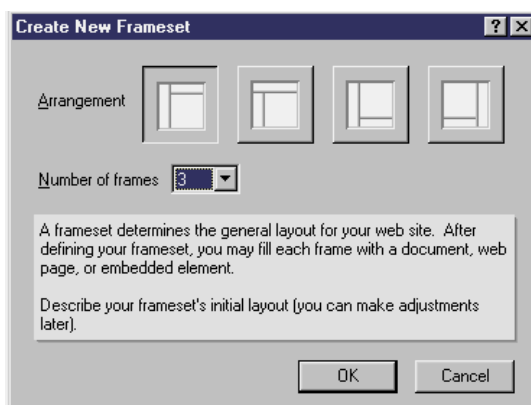
<i>Form</i>	<i>Page</i>
Created by a designer only	Created by a designer only
Contains fields	Contains no fields
Created once, used many times	Created once, used once for display
End users use forms to create documents	End users view pages

Frames and framesets

A frame is an independently scrollable section (also known as a pane) within the larger application window. This larger window is normally a Web browser. Frames bring advanced layout and user interface capabilities to the Web, because each pane can display its own HTML page.

A frameset is a collection of frames, displayed simultaneously. Framesets are a common method for Web developers to use to lay out a Web site. Frames allow you to have a navigation pane (usually on the left side of the screen) that is consistent throughout your site.

The Frameset Designer appears in the Design pane of Domino Designer. When creating a frameset, you can initially choose between two, three or four frames within the frameset. Arrangement options will differ, depending on the number of frames chosen. Within the Frameset view, click New Frameset to show the Create New Frameset box.



When you create your initial frameset, you can further define each frame with the appropriate buttons on the top of your frameset view to:

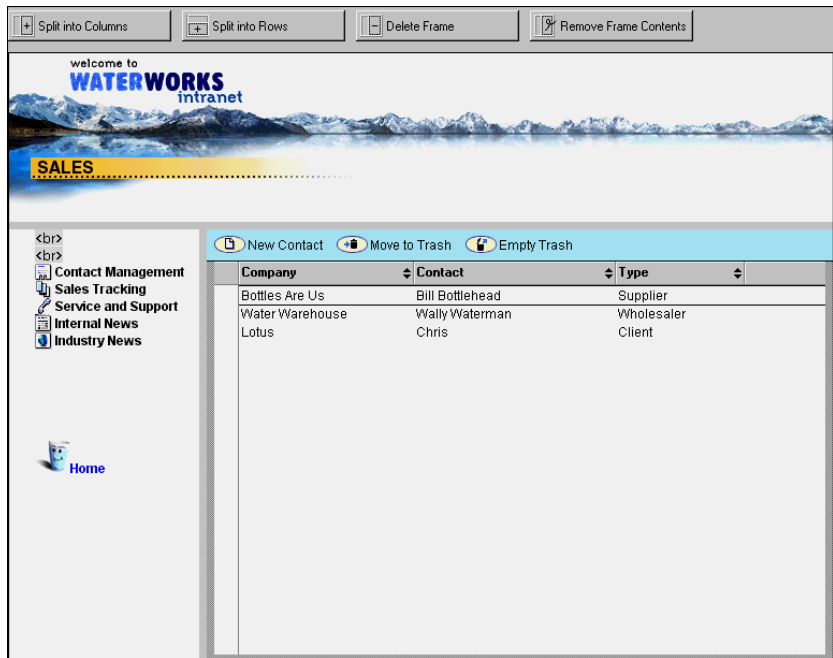
- Split into Columns to divide the frame into two frames vertically
- Split into Rows to divide the frame into two frames horizontally
- Delete Frame to remove the frame
- Remove Frame Contents to delete the contents of the frame, but leave the frame in place

The Frame menu has the following options:

- Frame Properties, which brings up the Frame Properties box
- Frameset Properties, which brings up the Frameset Properties box
- The Split commands described previously
- The Delete Frame command described previously
- The Refresh Frame Content command. This command reloads the content of the currently selected frame. For example, if you have a page in a frame, and then you go back and change that page, you can use this command to refresh the frame content. The page reloads into the frame, and you will see the changes in the frameset.
- The Remove Frame Content command described previously

Framesets can contain pages, views, forms, Java applets, Active X components, or URLs within each individual frame. Framesets also feature automatic targeting.

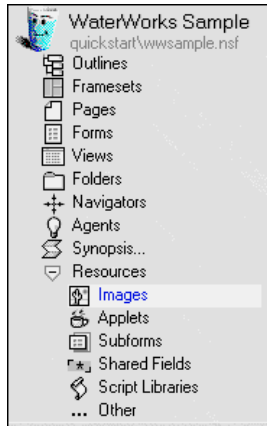
The following figure shows a frameset from a Domino R5 sample database that contains three frames, the top displaying an image logo on a page, the bottom left an outline, and the bottom right displaying a view.



Resources

A resource is a design element that is created once and stored; it can then be reused or shared. Resources include images, agents, and actions. The Shared Resources feature allows you to store assets in the database that you would like to use throughout your application. You develop the shared resource once and maintain it, enabling you to use it throughout the application. This saves disk space and time, both when building the application, and when running it.

The shared resources appear as another design element on the menu. Resources are stored in the Resources view in the Design pane.



When you edit a resource, all instances of that particular resource are changed.

An image resource is a shared graphics file. Images can now be stored in their native form (.JPEG, .GIF), and can be displayed in Notes or served to the Web directly in that form.

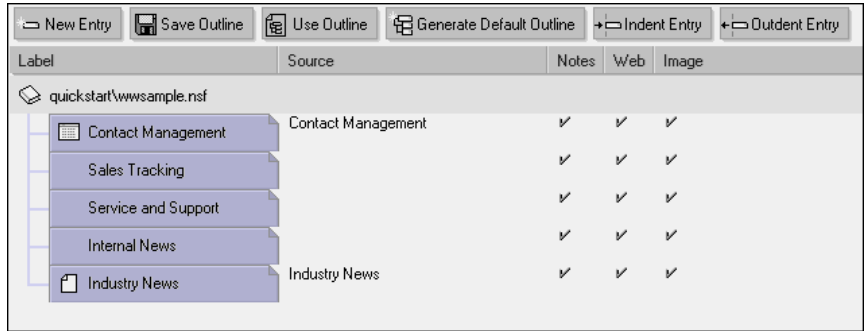
Outlines

The Outline feature lets you organize the structure of your application using a hierarchical tree structure of links to other elements. Outlines correspond to the existing Web concept of site maps. The closest element there was to this functionality in Domino R4 was the navigation pane in Notes.

Outlines represent a significant enhancement in R5 because they give the designer an easy way to begin laying out an application, by deciding what is in the application up-front and adding those elements to the design. An outline generates dynamic and automatic navigational structures for the site or application.

The outline has two components:

- Outline design — Lists the application design elements and links between elements.
- Outline control — Shows the outline embedded on a page; it allows users to navigate through the application.



Each tile in the design window represents a link to something:

- View
- Document
- Page
- Navigator
- Form
- Database
- URL

An outline can also be set to display as an applet on a browser. This allows the outline to be a navigator for Web-based applications.

The Outline can provide a starting point for design. In R5, the first element accessed by the design twistie is called an outline. Start off by filling in the “top of the outline” — what page or document is to be displayed as the “home” for this site, key buttons on the home page, and so on. Then, proceed to “fill in” the outline by defining the forms, views, and so forth, that cause the database to be populated.



HTML

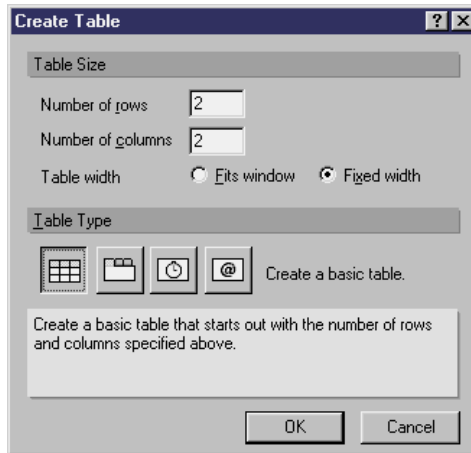
You can import full-fidelity HTML files (including applets and animated .GIF files) from anywhere on the Web and display them within Designer (as well as in the Notes client). HTML 4.0 is fully supported. Beyond HTML importing, you can highlight anything in Microsoft Internet Explorer, and copy and paste it into Designer.

For more information on creating and using any of the new design features in Domino R5, see the online help *Domino R5 Design Help* and the redbook *Lotus Domino R5.0: A Developer's Handbook*, IBM form number SG24-5331, Lotus part number CC7EDNA.

Tables

Domino R5 has vastly improved the designer's control over tables and their formatting.

The user interface for Domino Designer R5 allows for the easy creation of the four types of tables available in Domino R5. To access the dialog box, choose Create - Table.



Under Table Type, you can select one of four types of tables:

- Basic
- Tabbed
- Rolling
- Programmatic

To create any of these tables:

1. Enter the number of rows and columns required.
2. Select Fixed width, if you want the table to have a specific width, or select Fits window, if you want the table width automatically adjusted to fit the window.
3. Select the table type you would like to create.
4. Click OK.

Most of the table properties are adjustable after the table has been created.

Creating a basic table

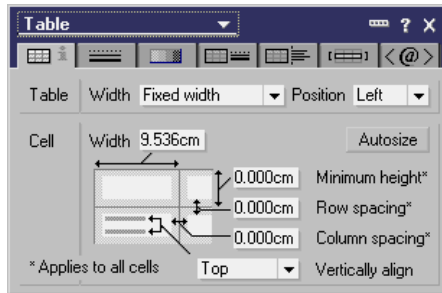
A basic table looks like a standard table available in Domino R4, but many style improvements have been made to the look and feel of the tables. These style enhancements also help improve the consistency of the look of tables in applications that are viewed in Notes and on the Web.

Basic tables include the ability to become recursive tables. A recursive table is a table nested within another table. You can nest up to eight tables deep within other tables.

The Table Properties box is used to enhance the look of your tables. Some of the style improvements included for tables in Domino R5 are described in the following sections.

Control over the sizing, spacing, and alignment of tables

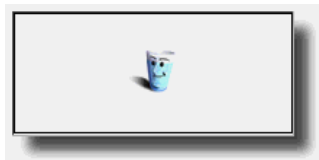
The first tab in the Tables Properties box, the Table Layout tab, allows you to control the size, spacing, and alignment of your tables.



In the “Width” field, you can select Fit to window, Fit to margins, or Fixed width. Fit to window fills the entire screen with the table. If your table is of a fixed width, the “Position” field allows you to align your table left-justified, right-justified, or centered. You can specify the height, row spacing, and column spacing as well as the position of text or images placed in cells within the rows and columns.

Control over the borders for table

In Domino R5, you can control the cell and table borders. The second tab in the Table Properties box is Cell Borders, the fourth tab is Table borders. Selecting either of these tabs lets you specify the properties of cell or table borders, such as color and line style. You can also add a drop shadow to the entire table.



Colors and images

The third tab in the Table Properties box allows you to control the table colors. The “Table color” field lets you select a background color for your table; it can be set for the total table or alternating by rows or columns. Cell colors can be set to a flat color for the entire cell, or to fade from one color to another from top to bottom or left side to right side of the cell as shown in the following figure:

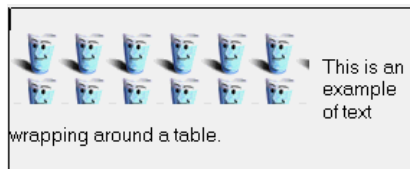


You can also select an image from the Resources Folder of the database to insert into the cell. This image can be shown once, repeated across or down the cell, tiled through the entire cell, or expanded to fit the cell.

Both the cell color and image selection can be applied to all the cells within the table.

Margins and wrapping

The fifth tab of the Table Properties box allows you to control the margins based on the available space. The Table wrap options let you wrap text around an image or other text, or wrap text in newspaper column format.



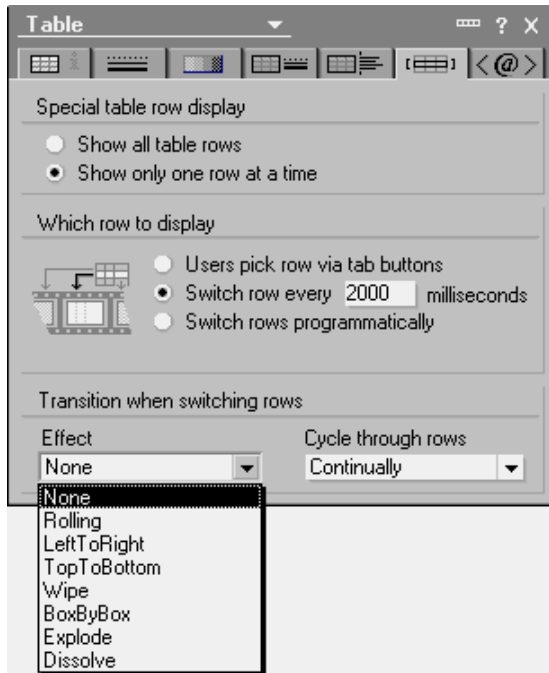
Creating a tabbed table

A tabbed table allows you to separate types of information on separate tabs. Each tab corresponds to a row in a traditional table layout. A tabbed table enables you to condense a large amount of information down to one screen.

When you create a tabbed table by choosing the option at table creation, Designer automatically selects the “Show only one row at a time” and the “Users pick row via tab buttons” options. You can also change a table’s options to display as a tabbed table by choosing these options in the Table Properties box. To fill in the label on the first tab, select that tab, open the Table Properties box, and select the Table rows tab.

Creating a rolling table

A rolling table is a table that cycles separate lines of text or graphics to display in a sequence. Each line of text can display a different format.



Creating a programmatic table

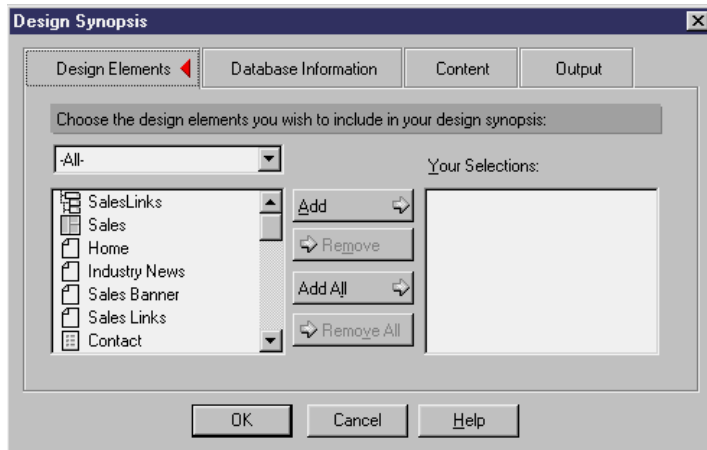
A programmatic table is a table that presents a different row based on the value of the field. In the table, you must create a field named \$TableName, where TableName is the name of the table. A programmatic table will only be available to Notes users.

For more information on creating and programming tables, see the online Domino R5 Designer Help and the article “The Domino R5 Designer — New versatile tables” at <http://www.notes.net/today.nsf>

Design Synopsis is a redesigned version of the reporting tool available in Domino R4 that helps you analyze your applications by providing you with a complete, structured list of the forms, pages, and scripts that make up an application.

The tool produces a report in either text output or to a Domino database. It provides information about the database Properties box, access control list, replication, and design element information for every element used to build the application, including script libraries.

Design Synopsis is available in the application design pane under agents. You can produce a report on all design elements within the database, or select elements individually for inclusion.



Summary

In this chapter, we discussed the Domino Designer client and some of the design elements enabling a Notes designer to create applications that allow both Notes and Web users to see and use an application the same way.

Chapter 3

Ease of administration

This chapter presents an overview of some of the major administration enhancements which are incorporated in R5. Detailed technical discussion as well as step-by-step instructions for using the new functionality are found in later chapters; this section introduces the new features.

Tip You can find additional information in the R5 database “Domino Administration Help” under “Administration Tools – The Domino Administrator.”

The following topics are covered in this chapter:

- Administration client
- User administration
- Server administration
- Summary

Administration client

With Lotus Domino R5, a completely new Administrator client is being introduced, which is separate from the basic Notes client. The Administrator is used to maintain and administer your Domino environment. Using this client gives authorized individuals the ability to perform the day-to-day administrative tasks necessary to keep your network running smoothly. This single interface integrates different tasks and configurations very conveniently and transparently.

The new Administrator client provides significant improvements over R4.x. It produces greater efficiency by combining access to all the administrative tasks in one place, eliminating the need to open different system databases. It can work in standalone mode, without having the Notes client open. This compares favorably to R4.x, where the administrator had to jump back and forth between the administration tool and the Notes client.

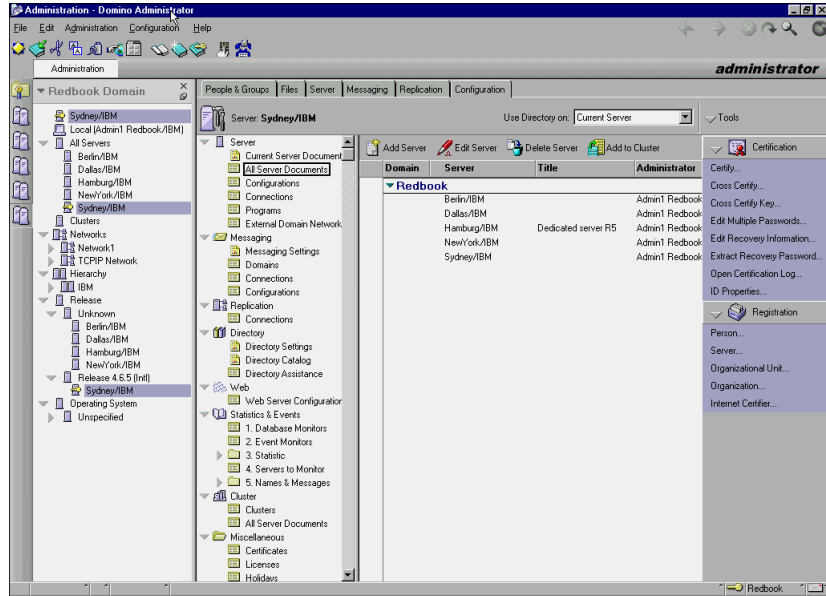
Integrated system databases

The system databases integrated in, and utilized by, the Administrator client are:

- Domino Directory (NAMES.NSF), which also includes some Web configurations that used to be part of the DOMCFG.NSF
- Domino Assistance
- Secondary Domino Directories, if they are configured on the server
- Administration Requests (ADMIN4.NSF)
- Certificate Log (CERTLOG.NSF)
- Statistic & Events databases (EVENTS4.NSF, STATREP.NSF)
- Catalog (CATALOG.NSF)
- Notes log (LOG.NSF)
- Reports (REPORTS.NSF)
- Mail box (MAIL.BOX)
- Domino Configuration (DOMCFG.NSF)
- Cluster Directory (CLDBDIR.NSF)
- Mail Tracker Store (MTSTORE.NSF)
- Lotus MTA tables (MTATBLS.NSF)

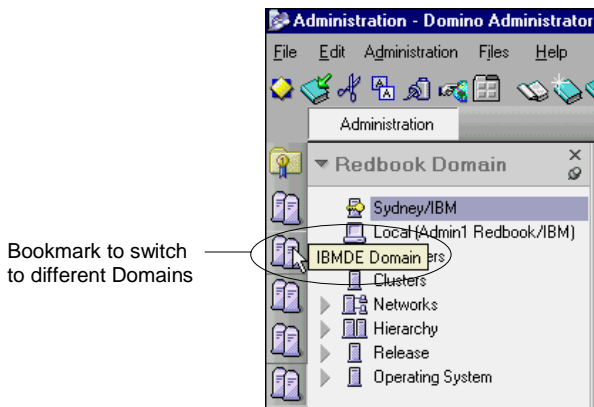
A look at the Administrator interface

Here is a look at the Domino Administrator interface:



Domain management

The Administrator client allows you to administer Domino servers in your own domain as well as other Domino domains. This enables large organizations to administer their entire enterprise infrastructure from a *single point of control*, if so desired.



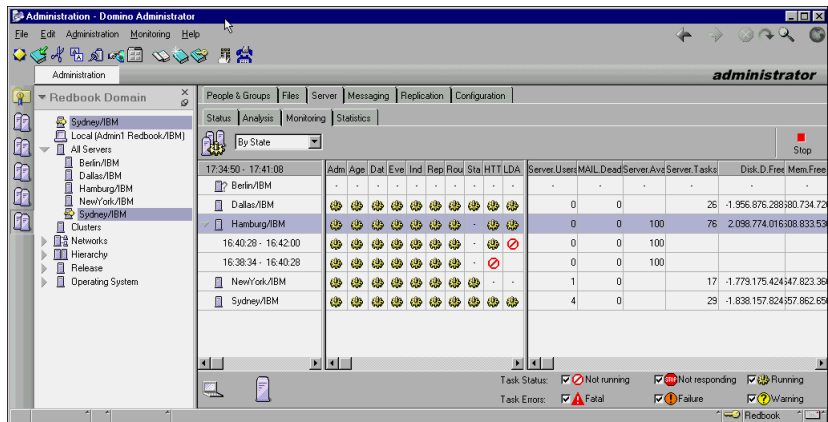
Tip Refer to Chapter 22, "Monitoring," for details on how to add multiple domains.

Real-time monitoring

R5 now gives administrators a great diagnostic tool for monitoring servers at a granular level. Similar functionality was formerly provided by a separate tool called NotesView. From the Monitoring tab of the Administrator client, you can monitor the operational states of multiple Domino servers at the same time, in an easy-to-view graphical format. Information is provided real-time and allows the administrator to proactively observe the status of server tasks and statistics.

Another key feature of the Administrator client is the customizable interface. Administrators can customize the information displayed by adding or removing servers, tasks, and statistics that they wish to monitor. For example, depending on the administrator's role, they might want to quickly check statistics such as dead mail or the number of HTTP requests per minute.

In addition, they can choose the level of status and error symbols to display. Finally, custom addin server tasks, such as a third-party virus scanner, can also be integrated into the view and monitored.



Note Additional tasks, for example, a checker available from third-party vendors, can be integrated into the view and monitored using the Administrator client.

Topology maps

Based on the Domino Directory and an additional server task called Maps, the Administrator client can graphically illustrate the replication and messaging infrastructure.

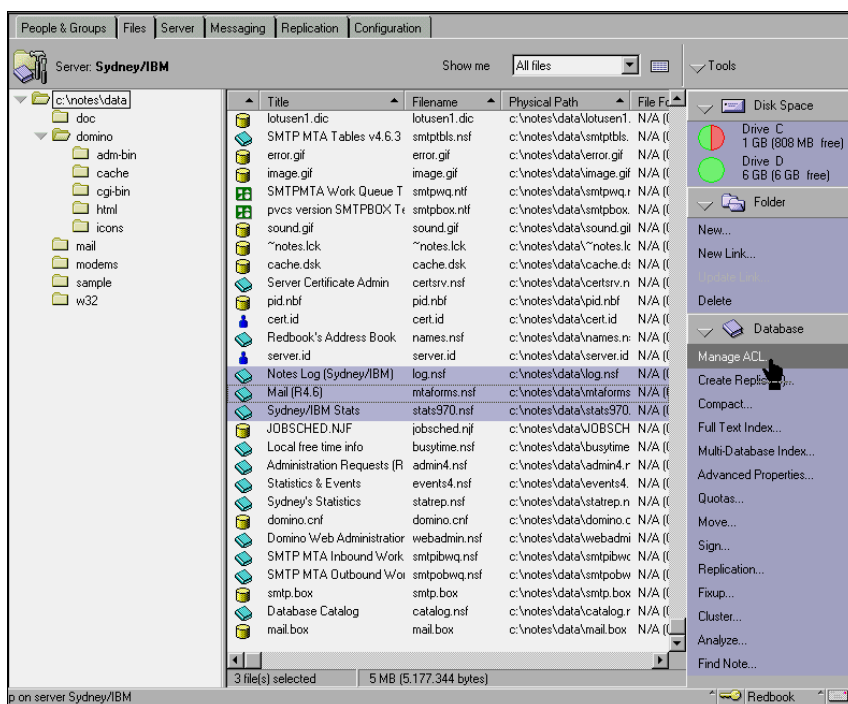
The following figure shows an example of a messaging topology.



File handling

Chapter 3: Ease of administration 49

In addition, the file tab is drag-and-drop enhanced. Databases can be dragged to a server in the domain folder to create a replica or move the database.

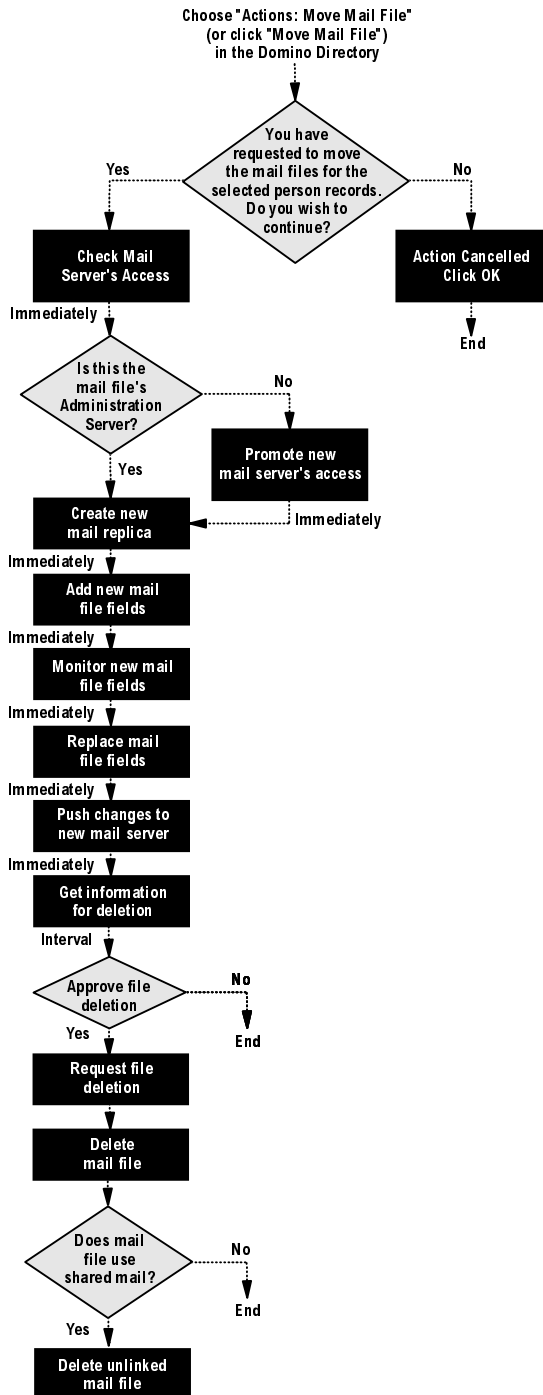


Moving a user's mail file

If a user's location changes or consolidation on the server is necessary, mail files need to be moved. This needs to be performed without interrupting regular daily business operations. In Domino R4, this process involved numerous, complicated steps, including creating the replica, editing the person document, and editing the client's location document, among others.

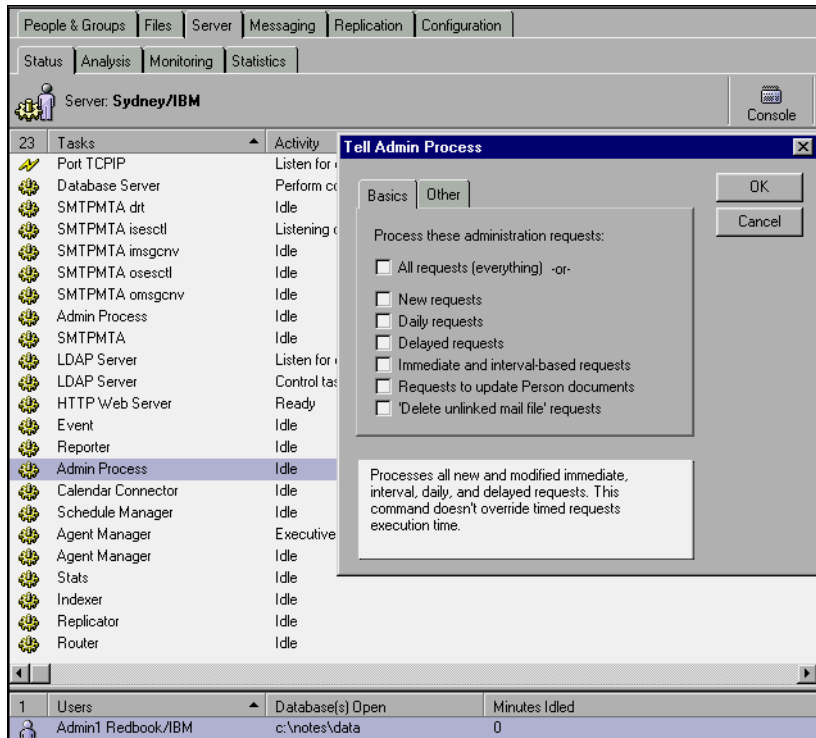
With the Administrator client, you can accomplish the move by simply clicking Tools - Move Mail File on the People & Groups tab, or choosing Actions - Move Mail File. In addition, you can drag and drop mail files to a new server. When moving more than one mail file at a time, all the selected mail files must have the same destination server.

The action utilizes new improvements to the administration process (AdminP) in R5. The following figure illustrates the workflow performed when issuing a Move Mail File command in R5. It also shows those steps where interaction is still needed:



Server commands

Administrators using previous Domino releases had to learn a large number of server commands and parameters to effectively manage their environment. The R5 Administrator client now makes it a lot easier to issue the right command with the right parameters. Server tasks are presented graphically and can be configured using dialog boxes. This makes it easier to utilize all the functionality built into the program.



There are also some new server commands introduced in R5:

- `Restart server` shuts down the Domino server and restarts it again after a timeout of 10 seconds.

Note There are problems with this command when it is performed on an NT server running Domino as an NT service. The Domino server is not always ended correctly, and tasks keep running. Do not use this command on those machines.

- Restart port *portname* restarts the port specified.
- Tell http restart quits the HTTP task and loads it again.
- < *batchfilename* executes a batch of console commands on the server console. The batch file is expected to be in the NOTES\DATA directory. You can also specify a different path.

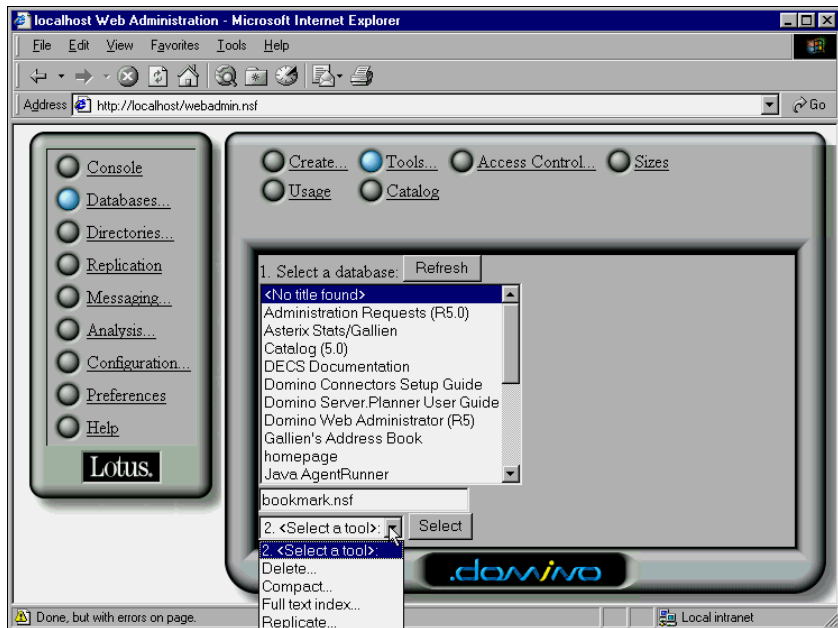
Web administration client

In addition to the Notes Administrator client, a Web-based application can be used for administering Domino servers. You can use a browser to open the Web administrator (WEBADMIN.NSF) on your Domino server running the HTTP task, which makes this tool platform-independent.

The Web-based administrator provides the following features:

- Access for administrators without a Win32-based operating system.
- Access to a server console and server configurations in the Domino Directory.
- Enhanced database tools, compared to R4, that can be used to:
 - Create new databases from templates
 - Delete databases
 - Compact databases
 - Full-text index databases
 - Replicate databases
 - Create new copies of databases
 - Create new replicas of databases
- Statistic and logging information is available and can be graphically presented.
- It *cannot* be used for registration purposes.

The following figure shows what it looks like when a browser opens the Web administrator:



User administration

The Administrator client includes a new registration interface. The registration process is now based on a registration queue database that stores all the information for further adjustments.

The administrator's registration procedure is enhanced by new settings, including the following:

- General changes to multiple person entries in the queue are now possible.
- Groups can be defined at registration time.
- Password *quality*, rather than length, can be defined.
- Persons can have different certifiers and be registered together.

A look at the new registration interface

The following figure shows the new registration interface:

Register Person -- Mark J Smith

☒ Advanced

Registration Server... Local

First name MI Last name Short name

Mark J Smith MSmith

Password Password Quality Scale

123xyz\$!@ Weak Strong

☒ Set internet password Strong password for servers and certifiers [12]

Internet address Internet Domain

Mark.Smith sl.dfw.ibm.com Format...

The Internet address (above) is created using the person's name (above), the internet domain and internet address format components. You can also edit the internet address directly. It must be unique in the address book.

Add person Import Text file... Migrate people...

Registration queue:

User Name	Registration Status	Date
Smith, Mark J	Ready for registration	04.11.99 15:58

Register All Register Delete Options... Done

Note Although multiple setup profiles can be specified for a single person in the person document, only one setup profile can be configured at registration time.

For more information on user registration, refer to Chapter 21, “User administration.”

Dynamic user configuration

Knowing a user's client configuration is always the first and essential step when supporting end users. R5 introduces enhancements that give the administrator more power to influence the client configuration.

The components you can manage are:

- Location documents
- Connection documents
- Bookmarks

- Replicas
- Account documents
- Mobile Directory (Directory catalog)

The administrator manages these components through User Setup Profiles, which were also a feature of R4.x. In R5, more settings have been added to the profiles, like pushing bookmarks, or even local replicas, to the client. On the client side, a dynamic lookup performs these changes.

For implementation details, refer to Chapter 21, “User administration.”

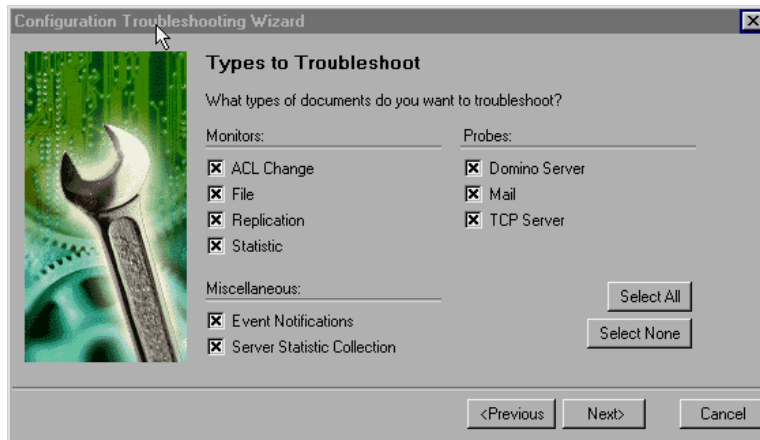
Server administration

The following section covers aspects relating to server administration.

Statistics & Events

The functionality of the Statistics & Events database and the supporting server tasks have significantly increased and changed.

The Statistics & Events database (EVENTS4.NSF) contains Wizards for easier configuration and troubleshooting.



Event notification profiles can be configured to provide different actions for events of the same severity or type. In R4, the event monitors were limited to react on a specific severity and/or types. R5 now gives you the ability to monitor events with certain phrases or words. Several new event types are introduced:

- Database
- Network

- Compiler
- Router
- Agent
- Client
- AddIn
- AdminP
- Web (HTTP/HTTPS)
- News (NNTP)
- FTP
- Directory (LDAP)

New notification methods are now available:

- Pager
- Run a Program
- Log to UNIX System Log
- SNMP Trap
- Broadcast

With the Run a Program method, administrators have the ability to automatically react to certain situations.

Refer to Chapter 22, “Monitoring,” for more details on the new Statistics & Events functionality.

Connectivity probing

The monitoring function of the Domino R5 server is enhanced with the ability to verify the connectivity of certain services or servers. This probing automatically checks, for example, an SMTP or a server connection, and notifies administrators when a given time threshold is reached. That way, service levels and availability can be automatically monitored.

The following probes are available:

- Domino server probe, which tracks server response time
- Mail probe, which tracks mail routing
- TCP/IP server probe, which tracks TCP/IP services like SMTP, HTTP, NNTP, and so forth

Refer to Chapter 22, “Monitoring,” for instructions on how to implement probing.

Mail tracking

Once enabled, mail tracking gives administrators the ability to track any message that was sent from a client. It keeps track of the status of a message being routed through the mail environment until it is read and deleted. The data is stored in a separate database (MTSTORE.NSF), where it can be accessed by the administrator through the Administrator client.

Statistical reports on mail usage can be generated. The reports can be presented in tabular and graphical fashion, and they can be configured to provide several different pieces of information, for example, the *top 20 mail users*.

Refer to Chapter 22, “Monitoring,” for details on how to implement mail tracking.

Server consolidation

Due to the improved performance and scalability of Domino R5, the actual number of Domino servers in your environment may decrease, which in turn will ease the server administration.

Domino R5 provides a tool to support a server merge: the Decommission Server Analysis. The tool is launched from the Administrator client and compares two servers, the source server and the target server of the merger.

The results are stored in a database on the server (DECOMSRV.NSF). This database contains detailed information identifying any inconsistencies between the source and target server that require attention before taking the source server out of production. Based on this information, the services can be safely moved from the source server to the target server.

For further details, see Chapter 12, “System databases.”

Summary

From the administrator’s point of view, the Domino R5 Administrator client includes many features and functions to ease their daily work. The Administrator client offers a powerful infrastructure management tool. New design and interfaces make the administration activities easier to accomplish.

On the server side, monitoring and reporting features provide fast and efficient problem recognition and solutions.

Chapter 4

Benefits of the Domino R5 server

In this chapter, we outline some of the new features in Domino R5 that can improve the return on your existing investment in a Domino system. While looking at some of the benefits, you should also take into account the costs associated with any project that upgrades system software, such as training. Some of these are outlined in Part 2 of this redbook, *Setting the stage: Planning for Domino R5*.

In this chapter, we give a brief overview of features in Domino R5 that:

- Increase the reliability and availability of the Domino server
- Increase scalability of the Domino server
- Improve performance of the Domino server
- Provide Internet Standard Support
- Ensure coexistence with a Domino Release 4.x environment
- Add new capabilities to the product

We also describe some of the new features included in Domino R5 that enhance your current Domino system for both users and administrators, increasing your return on investment and improving productivity.

Increased reliability and availability

In today's fast-paced business world, you cannot allow your business systems to be unavailable to your employees. Many businesses measure their loss of business and staff productivity due to computer system downtime in the hundreds of thousands of dollars per hour.

The loss of the staff's ability to communicate with each other and external companies, via e-mail or fax, means staff are unproductive. If a company Web site is not available for a number of hours, it could mean not only a loss of business and income, but also a reduction in credibility of the company name in the marketplace.

Not only do companies want a system that is available 100% during core business hours, but more often, especially in instances such as Web sites, a system that can provide 24 x 7 availability. The ability of a system to reduce its required scheduled maintenance outages would be of great benefit in helping to meet this target.

The features of Domino R5, which provide such improved availability, include:

- Support for high availability platforms
- Clustering
- Online in-place compaction
- Online indexing
- Full and incremental online backup support

This section presents the highlights concerning each of these features. For details and instructions on implementing the features, see the appropriate chapters later in this book, and the book *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Support for high availability platforms

Domino R5 provides support for enterprise platforms such as Solaris, AIX, AS/400, HP-UX, and OS-390. These platforms measure availability in months to years of scheduled uptime.

Use of Domino R5 on any of these robust platforms not only improves its availability but also scalability.

Clustering

Domino has its own high availability or load balancing built in, and it is possible to scale Domino to a considerable degree by adding processors and having multiple copies of the Notes databases mirrored and load balanced across multiple systems. A key advantage of this Domino clustering technique is that it will allow “clustering” across multiple different platforms and operating systems, making Domino clusters platform-independent as well.

Domino clustering provides the following advantages:

- Failover
- Workload balancing
- Cluster replication
- Scalability

Clustering in Domino R5 has been enhanced to include support for collaborative calendar and scheduling failover, synchronous mail agent support of failover, and improved unread mark support of replicas.

Domino integration with OS clusters

Domino R5 can run under Microsoft Cluster Services (MSCS) configuration in either Active/Passive or Active/Active mode.

In an Active/Passive configuration, MSCS fails over the Domino server to a secondary MSCS cluster server, where the Domino server is then started. In an Active/Active configuration, two Domino servers are running on two MSCS cluster servers, and if one Domino server goes down, it fails over to a second partition running a separate instance of Domino on the other MSCS cluster server.

Internet Cluster Manager

Internet Cluster Manager acts as a single point of entry to your Web sites, managing multiple requests and sending them to various servers that exist within a cluster that serves your Web.

Internet Cluster Manager extends failover and load balancing to Web browser clients using native Domino clustering and the Internet Cluster Manager.

Internet Cluster Manager supports both HTTP and HTTPS. It will monitor Domino HTTP servers for availability and disallow any new HTTP connections to servers that are out of service. Instead, it will fail over any new HTTP connections to the best available server.

Online in-place compaction

In Domino R4, each file system of a Domino server needed to have at least as much space free as the largest database to be able to compact that database. That meant that if a file system had a Notes database of 1GB size, it needed at least 1GB free in the same file system to be able to compact the database. With Domino R5, the requirement of the extra disk space has been removed with online in-place compaction.

Compaction of R5 databases occurs online and “in-place,” meaning that it does not require additional disk space. Users can read and modify a database while compaction is occurring. R5 compaction is also significantly faster than R4 compaction — up to 10 times faster.

Because clients and servers can continue accessing databases during compaction, administrators have more flexibility when scheduling maintenance tasks. An R5 Domino server does not need to be recycled or stopped to compact databases that are constantly in use, such as the Directory, logs, admin4, and others. In conjunction with transaction logging backup, this can significantly reduce the amount of time the R5 Domino server is unavailable, as the administrator can complete maintenance tasks with the Domino Server running.

Online indexing

View updates and rebuilds are now three times faster than for R4.6x and R4.5x.

The parallel indexer allows more than one indexing thread on servers with more than one CPU. Having one thread per CPU improves performance, especially for the drive which has the temporary files for view rebuilds. This allows you to better leverage multiple CPUs on a server.

If you designate a separate drive for the temporary files for the rebuilds, the view rebuilds can be up to five times faster. The greater the space on the drive you dedicate to view rebuilds, the greater the increase in rebuild speed.

Online indexing allows access to the database views that are currently being updated, and allows users to continue accessing a server when the \$Users view in a Directory is being updated. In Domino R4.x, if the server was indexing the \$Users view of the Domino Directory, it could result in users being unable to access the Domino server, or in mail routing being suspended until the indexing was complete. This occurred because indexing is a process-intensive task.

Full and incremental online backup support

Lotus has published a set of APIs with Domino R5 to allow tight integration with third-party incremental backup solutions. Used with transaction logging enabled on the Domino R5 server, third-party backup products will be able to do full and incremental backups of Domino databases.

A list of third-party products that are currently available is given in Chapter 13, “Transaction logging.”

Scalability

Scalability is the ability of a system to support growth of the user population over time. The scalability improvements in Domino R5 cover both the size of the Domino databases and the number of users supported per server. Depending upon your current setup, the scalability of Domino R5 may allow you to reduce the total number of servers in your Domino system.

The ability to reduce the number of servers in your architecture that are dedicated to back-end server tasks, and to redeploy or remove these servers, reduces the amount of overall administration needed and the cost of server administration staff, as well as reducing the actual hardware and overhead costs. Since reducing costs and increasing profit are high on the agenda in any organization, achieving the savings that scalability makes possible is an attractive prospect.

Scalability of Domino R5 is improved through the following features:

- 64-bit support for AS/400
- Unlimited database storage
- Directory catalog
- Multiple mailboxes
- Extended native SMTP
- Partitioning

Support for AS/400

Lotus has developed a native version of Domino for the AS/400, which provides much faster messaging, database, and Web applications.

AS/400 uses a Technology Independent Machine Interface (TIMI), which controls how the OS accesses the hardware, essentially dissociating from the OS such operations as hard drive management and other device management. AS/400 offers significant advantages for Domino, such as an integrated file system, virus resistance, application protection, a relation database and reliability.

In addition to stability enhancements, Domino on AS/400 also offers integrated messaging, a single sign-on to AS/400 and Domino, and integration of Domino and DB2/400.

More information about Domino for AS/400 is on the Web at:
www.as400.ibm.com/lotus_notes/notesmain.htm

Large database size

Domino R5 databases have been designed without size limits, and *certified* for files up to 64GB in size. Other IBM platforms may certify even higher per operating system database size limits. While the individual certified file size is 64GB, development tests run with 50,000+ databases on a single server.

Directory catalog

The directory catalog aggregates user information from one or more Domino Directories (the new Name and Address Book). The directory catalog is optimized for fast searches and compact storage of user information, and it is scalable to support at least one million registered users.

The directory catalog can replace existing consolidated directories on servers for mail lookups, and is fully LDAP-enabled. This means it can be searched using standard LDAP clients. The directory catalog is a lot smaller than current directories in R4.5 and R4.6. It can be replicated to users' desktops or laptop computers so that users can take the entire company directory with them when they are away from the office.

Multiple mailboxes

In Domino R5, you can now have multiple mailboxes on each Domino server. This increases the total throughput of mail on each Domino server, allowing you to spread the load of one mailbox over several databases.

Multiple mailboxes in Domino R5 reduce the contention for the single mail.box database found in Domino R4.x. In Domino R4.x, a large NotesUpdate (such as a large message with an attachment) could lock the mail.box for a period of time, causing other requests to queue up behind it. With multiple mailboxes, the server simply offers up the next mail.box to the next request.

In Domino R4.6, if a mailbox became too full with pending mail, due to many users simultaneously sending messages, the router task could hang, and an administrator would need to recycle the server and compact the mailbox. With Domino R5 and multiple mailboxes, the load is spread across the server.

For large Domino sites that utilize dedicated mail hubs for mail routing between locations, geographies, or separate Domino domains, the setup of multiple mail hubs may mean that they are able to reduce the total number of mail hubs in the Domino system.

For further information on multiple mailboxes, see Chapter 9, “Messaging,” of this redbook, as well as *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Native extended SMTP routing

The Domino router can now route natively over the SMTP protocol to transport Internet or intranet messages, and it can also route over NRPC for compatibility with previous releases. The SMTP MTA, which was included in previous releases, is no longer needed. When deploying Domino with R5 clients, message conversion between MIME and Notes rich text is eliminated at the routing layer because the Notes client fully supports MIME.

If configured, both SMTP and the Notes mail routing protocol coexist within the same server. The Domino router implements the base SMTP standard plus SMTP service extension (ESMTP) to deliver optimal SMTP performance. In addition, other extensions such as the Delivery Status Notifications specifications allow Notes and Domino SMTP to provide message delivery information to the Notes client.

If your Domino site currently utilizes multiple dedicated SMTP MTA servers, you may be able to consider merging the multiple SMTP MTAs to one SMTP MTA. Where your Domino site may incorporate a dedicated SMTP MTA and a dedicated mail hub, these two servers may also be candidates for merging.

Finally, some sites may be able to do away with both dedicated mail hubs and dedicated SMTP MTAs, relying instead on multiple mailboxes on mail servers, with native SMTP routing enabled on mail servers.

Partitioning

In Domino R4.6x, the maximum number of partitions available on a server was six. Domino R5 allows unlimited partitions per server. In a Windows environment, each partitioned server runs on its own distinguishable service, allowing for the startup and shutdown of each partitioned server through NT Service Manager.

Partitioning of Domino instances, Domino tasks, and features within a single server and across multiple servers keeps the Domino capacity from being limited by current operating system and hardware limits.

Performance

These days, everything needs to happen immediately, and sometimes you would even prefer that it had happened yesterday. If you asked your user community whether your company's computer systems are fast enough, they would probably say NO, irrespective of how good your systems might be. But there is a tradeoff in cost for speeding things up. High-performance hardware is costly, and skilled maintenance staff to tweak your systems are in demand in the marketplace, and can be difficult to obtain.

Upgrading your servers to Domino R5 brings a number of key benefits that result in greatly increased performance, improved backup and error tolerance, faster rebuilds, better compaction, and new database options. However, you are probably wondering if your current server hardware can support more users after the Domino software is upgraded to R5, or if you will be able to consolidate server machines. These are not easy questions to give a generic answer to, as they depend heavily on your particular Domino architecture. In Chapter 5, "Planning for your Domino R5 upgrade," we give some general guidelines for planning an upgrade, to ensure your Domino system performance is maintained.

Each Domino system is different. The size of your domain in terms of the number of servers or users, the network and Domino architecture, the hardware used, and where the servers and users are geographically located all affect the performance you currently experience within your Domino system. Therefore, it is impossible to say exactly what sort of performance improvements you may experience when you upgrade to Domino R5.

Benchmarking suggests that most Domino customers will experience a two to five times increase in the number of users a R4.x Domino server can support, dependent upon the type of client accessing the server — for example, Notes clients or IMAP clients — as they utilize different features on the server.

Refer to the <http://www.lotus.com/performance> and <http://notesbench.org> Web sites for benchmarking information on your specific hardware configurations.

Assuming your current R4.x Domino server has acceptable response times, moving to R5 server code with the same server load will produce better end user response times.

This section is an overview of the performance improvements made on the R5 Domino server's code base, specifically the following items:

- Input output completion ports (IOCP)
- On-disk structure
- Transaction logging
- Multiple concurrent local mail delivery threads
- Database improvements

This section presents the highlights concerning each of these features. For details and instructions on implementing the features, see the appropriate chapters later in this book, and *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Input output completion ports (IOCP)

In R5, a Domino process, such as the server task, spawns “threads” to execute different operations simultaneously.

R5 uses “worker threads” to handle end-user sessions as users connect to the server. Worker threads can handle sessions for thousands of users in R5. In R4.x, if 1,000 users connected to the server, the server would spawn 1,000 threads. In R5, 80 worker threads might be started for several thousand users.

This design results in a reduction of the server's memory requirement for a given user load relative to R4, since fewer threads require the complete memory structure. A reduction in the number of threads executing the server's CPU means that more CPU cycles are available for completing Domino transactions. Also, fewer threads mean fewer expensive context switches involving stack and register changes over a large thread population. This enables more throughput in terms of Domino transactions being accomplished.

On-disk structure (ODS)

With the new R5 database format, called on-disk structure (ODS), writing to disk takes place less frequently, but more efficiently, and is designed to make indexing and searching better.

ODS and the enhanced design of R5 templates offer much improved performance, especially for databases such as the Domino Directory and the mailbox. Database operations require less I/O, and memory and disk space allocation are improved.

Transaction logging

Transaction logging writes all changes to a database sequentially to a log file and does not physically alter the database until those changes are safely stored on disk. This allows you to recover lost data caused by database corruption or other problems by “rolling back” the database to a given point and replaying the changes to the database through the log. This also allows greatly improved backup of the databases. R5 databases with transaction logging enabled do not need to have Fixup run on them.

Current testing has shown that enabling transaction logging on a Domino R5 server can improve request response by 2.6 times and overall response times by up to 10% because transaction logging records database operations in a sequential file, rather than writing operations to various non-sequential locations on the disk.

Multiple concurrent delivery threads

In Domino R5, mail administrators may now set up multiple threads to decrease mail message delivery times between servers within the same Notes Named Network. In addition, multiple mail router transfer threads can simultaneously deliver mail to the same destination server. Both of these options are configurable in the server's configuration document or their corresponding NOTES.INI parameter.

Database improvements

With the new Domino R5 on-disk structure in place, administrators and designers will be able to take advantage of a number of new options and properties for Domino databases, such as turning off unread marks, automatic archiving and document table bitmap optimization. Each of these will reduce the response time of the application and improve performance significantly for very little effort.

Internet standards support

International and industry-recognized standards for the Internet, such as POP3, IMAP, LDAP, MIME, HTTP, and HTML, have been opened up to client-server computing. It is now commonplace to have a choice of clients to use to access a server.

But there is also a downside, where you can end up with many different pieces of software on the desktop for each user to access various applications. This not only takes up desktop disk space, but requires lots of additional work for administrators (to keep versions up to date and distributed), for help desk staff (to be conversant and trained in many products), and for users (who lose productivity as they switch from one tool to the next).

Notes R5 and Domino R5 include greater support for Internet standards. This will allow you to remove some existing tools or software from the desktop and replace it with the Notes R5 client.

Native MIME content support and SMIME

Domino R5 message content is now stored in either Notes rich-text format or MIME. Domino translates between these formats depending upon its mail destination. Notes users who choose MIME format require no message translation when sending mail to and from the Internet. In a mixed environment of R5 and pre-Notes R5 users, no translation is required because the Notes R5 client can render MIME or Notes rich text.

Notes and Domino support the IETF standard, S/MIME v2, for secure Internet mail encryption and digital signatures.

Native SMTP routing

As mentioned earlier, the Domino router now implements the SMTP protocol to transport Internet/intranet messages, along with Notes mail routing protocols for compatibility with previous releases.

For further information on native extended SMTP in Domino, see Chapter 9, “Messaging,” and *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Multiple character set support

When converting between Notes rich text and MIME, the Domino mail router can now support all character sets when sending and receiving messages. Previously, several SMTP MTAs were required to provide support for multiple character sets.

LDAP v3 support and authentication

Domino R5 provides support for the IETF-standard Lightweight Directory Access Protocol (LDAP) v3, including add, delete, modify, compare, and abandon operations.

X.509 v3 certificates

Domino allows administrators to register new users with traditional Notes certificates and Internet-compliant X.509 v3 certificates. Notes clients can use these Internet Certificates for secure access to Web servers via Secure Sockets Layer and for secure Internet mail (S/MIME).

V3 Secure Sockets Layer (SSL)

Users accessing the Domino server over any supported Internet protocol can now use SSL v3 for certificate-based authentication and encryption. Supported protocols include IIOP, LDAP, HTTP, POP3, IMAP, and NNTP.

LDIF import and export

Domino supports import and export of directory entries to a text file using IETF-standard LDIF format. LDIF is useful for loading and unloading LDAP-compliant directory information retaining structure and format.

Web server authentication interface

Domino now supports a server API that allows you to create your own Web server extensions. A DSAPI, (Domino Server API) extension, or filter, is a program you create that is notified when certain events occur in the Web server, such as when a URL request is received or when a HTTP client is about to be authenticated.

For example, you might choose to write a program that performs custom authentication, which is often one part of implementing “single sign-on” within a corporation. In this scenario, the DSAPI program could be notified when Domino is about to authenticate a user. The DSAPI program could then parse the user name, check the user name and password against a legacy mainframe system, and if successful, notify the Domino Web server that it has handled the event (authentication), and pass Domino the distinguished name of the user.

Coexistence with a Release 4.x environment

Lotus Domino R4 servers can coexist in a mixed domain with Domino R5 servers. Databases that exist on both Domino server levels can replicate and interact, but with the impact that on-disk structure levels do not replicate.

A Notes R5 client can access both Domino R4 servers and R5 databases. A Notes R4 client can access a Domino R5 server and R5 databases.

Since R5 design elements cannot be read by the Domino R4 server, it is advised that an R5 designed database should reside on a Domino R5 server so users can take advantage of the new design features.

Supported platforms

Lotus provides Notes and Domino R5 support for the following platforms:

<i>Platform</i>	<i>Domino Server R5</i>	<i>Notes Client R5</i>
UNIX (AIX 4.3.1 or higher HP-UX 11.0, Solaris/SPARC 2.6, Solaris/Intel 2.6), Solaris 7*	Yes	No
OS/2 Warp Server V4.0	Yes	No
Windows 95/98	No	Yes
Windows NT Server 4.0 and Windows NT Workstation 4.0	Yes	Yes
Novell NetWare	No	No
Macintosh Power PC 7.6, 8.1	No	Yes
MacOS version 8.5.1 * *	No	Yes
MacOS version 7.6.1, 8.0, 8.1, 8.5, 8.6***		
AS/400 V4R2	Yes	No
Linux Red Hat 6.0 Intel x86	Yes	No
Linux Caldera 2.2 Intel x86**		
S/390 V2R6	Yes	No

* with Domino R5.0.1/R5.0.2.

** with Domino R5.0.1a.

*** supported but not certified platforms.

Additional features

Finally, we look at some additional features not yet mentioned that will allow you to extend your Domino system's functionality without increasing your total cost of ownership.

Any of the features mentioned in this section should be fully tested in your Domino environment to determine the impact in your particular environment. In some instances, it may be advisable to add dedicated servers to your Domino architecture to accommodate the features described.

The implementation of the features outlined in the following is described in detail in Chapters 7 to 13.

Among the additional features are the following:

- Geographic routing
- Domain search
- Internationalization
- Just in time encryption
- Account documents
- Enterprise integration — DECS
- Server.Planner

Geographic routing

This feature allows the user to automatically access other replicas of databases that exist within an organization. Using the domain catalog, the Notes R5 client will attempt to access other replicas based on communication latency and server availability. Geographic routing provides some of the failover made available by clustering, but without load balancing.

For further information on setting up geographic routing in Domino, see Chapter 12, “System databases,” and *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Domain search

In R5, you can search all databases in the domain with multi-database indexing selected, and any file systems referenced. By incorporating Access Control Lists (ACLs) into the search, users only get results from Notes documents to which they have access. R5 also provides dynamic indexing of new databases that are flagged to be included, and a centrally located index of all databases.

For further information on setting up domain search in Domino, see Chapter 12, “System databases,” and *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Internationalization

Alternate name support has been added to the Domino Directory person documents. Administrators can allow users to be identified in two languages, allowing the user to authenticate to the Domino server as either of their alternate names.

For further information on setting up certificates for alternate name support, see Chapter 21, “User administration,” and *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Just-in-time encryption

Just-in-time encryption allows for greater security of client mail for mobile users who do not keep certificates in the Personal Address Book or do not have certificates in their local directory catalog on the desktop. Messages are stored locally in unencrypted format in the user’s mail.box, and mail is encrypted at the time of connection to the server. Mail is delivered to the server in encrypted format.

For further information on just in time encryption in Domino, see Chapter 15, “Mail,” and *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, CT6T8NA, which are provided with the product.

Enterprise integration

Domino Enterprise Connection Services (DECS) is a tool to provide native access to enterprise data and applications. The tool includes an application wizard and online Help to assist you to define external data source connections and fields with your application that automatically update with external connector data. Some of the types of databases available to connect to are DB2, Oracle, Sybase, File directory, EDA/SQL, and ODBC. Domino Enterprise Connection Services provides some of the functionality of NotesPump.

For more information about connecting to legacy databases, see the Domino Enterprise Connection Services User’s Guide (DECSDOC.NSF) in your Notes or Domino data directory.

Server.Planner

Server.Planner is a planning tool to help you calculate capacity and load constraints on a variety of hardware and operating system platforms. Server.Planner is based on results from vendors who benchmark activities on their servers using NotesBench. Results can be queried by planners using a Notes interface.

Summary

In this chapter, we have identified some of the reasons why it is beneficial to your business and existing Domino R4 system to upgrade to Domino R5.

Among the benefits of Domino R5 are the following:

- Improved reliability and availability
- Scalability
- Performance improvements
- Support for Internet standards
- New features included in Domino R5

Not only can R5 lower your cost of ownership, it takes your infrastructure investment and lets you do more for your employees, customers, and partners. The “Grow-As-You-Go” capabilities provided by Notes and Domino R5 let you invest in your future as your needs evolve.

Part 2

Setting the stage: Planning for Domino R5

The most forgotten but important part of any project is planning. In the rush to get technology out to users, the importance of planning for upgrade deployments is sometimes overlooked. The cost of lack of planning is usually rework, which involves not only a waste of valuable time and other resources, but can also result in loss of trust from end users, and sometimes even in animosity. Investing the appropriate time into project planning will minimize risk and ensure a smooth transition from Domino R4 to R5.

Part 2 of this redbook, “Setting the stage: Planning for Domino R5,” introduces standard project management concepts to use for your Domino R4 to R5 upgrade project, and provides practical tips intended to reduce the amount of research and work your team needs to do.

We outline preparation methods for companies in the process of organizing their Domino R4 to R5 upgrade. This includes considerations for hardware, project management, and testing.

Then we discuss what to consider for the upgrade rollout as well as the rollout sequence for clients and servers.

This part focuses more on theoretical information to help you prepare your project plans, while Part 3 contains technical information on the Domino server and its components.

Chapter 5

Planning for your Domino R5 upgrade

This chapter covers some of the factors you should consider when planning a Domino R4.x to R5 upgrade of your Domino server infrastructure. There are many possible variations of Domino architecture, each of which has some unique characteristics to consider. This chapter does not deal with every possible factor associated with every design. Instead, we are going to concentrate on planning topics that affect any Domino architecture, independent of size, hardware, or operating system used.

This chapter covers the following topics:

- Defining project objectives
- Personnel requirements
- Audits
- Creating a plan
- Hardware and software considerations
- Domino R5 testing
- Rearchitcturing your environment
- Performing a pilot
- Lotus Notes licenses
- Preparing for the rollout
- Summary

Considerations for the rollout as well as the upgrade sequence of your infrastructure is covered in Chapter 6, “Rollout considerations for upgrading to R5.”

Defining project objectives

Before you begin your upgrade to R5, you should determine what it is you actually want to achieve from your Domino R4.x to R5 upgrade.

Some considerations when outlining your objectives are:

- Whether you just want your current Domino R4.x servers upgraded to Domino R5 with no new functionality included
- If you would like any new Domino R5 functionality implemented
- Whether to upgrade Notes R4.x clients to Notes R5
- Training requirements for administration, help desk or service center staff and end users
- Documentation needs
- What changes will be needed in current administration procedures to take advantage of new features in Domino R5
- Performance benchmarking to determine new load levels on current hardware using Domino R5

You should also consider what are acceptable service levels, or what levels of availability you would like to achieve with Domino R5, and what are the acceptable response times for applications and mail. You may want to compare your current R4.x service levels and response times with industry benchmarks and your upgraded Domino R5 system, and consider whether you would like to increase your Domino system performance.

Tip If you currently do not have a means of determining your service levels, try Mean Time Between Failure (MTBF) — a server add-in available from Iris at <http://www.notes.net> that analyzes your log files to give you statistics on how long your server runs between problems.

Prioritize your requirements and determine whether they can be divided up into phased implementations, then carefully define the scope of the project. Once you have obtained management approval for the scope, you are ready to review the options that will allow you to achieve your objectives, and to outline the expected costs of the project. At this time, you will not be able to give a definitive budget for the whole project, and may only want to estimate costs for a pilot or initial phase.

For more information on determining service level agreements, see Chapter 18, “Support and Communications” in the IBM redbook *A Roadmap for Deploying Domino in the Organization*, IBM order number SG24-5617, Lotus part number CT6P8NA.

Personnel requirements

There are basically two options available when determining the personnel requirements for an upgrade project: in-house staff or external consultants.

In-house staff

One of the main considerations when deciding on an implementation team for a project is whether your current resources are available for the additional work. Not only will they need to be available for work associated with the upgrade, but they will need training on Domino R5 before the upgrade can begin.

In addition to the technical staff, onsite support or help desk resources and the development team will have additional workloads for an initial period after the Notes client is upgraded to R5, while end users become accustomed to the new features. An advantage of using in-house staff is that your team knows the hardware and current system setup.

Outsourcing

When considering an outsourcing arrangement, you should still maintain control of the project. For example, you may want to have a Lotus or IBM Business Partner work with you on a project plan once you have an understanding of what you would like to achieve.

Some of the benefits of using an outside firm are:

- Immediate start, with no learning curve
- Knowledge transfer to the in-house team

There are many options for distributing the work required between your in-house team and the resources of a Business Partner or other outside firm. Possible project configurations include:

- A Business Partner provides project management and technical resources to complete the entire project.
- If you have multiple locations, a Business Partner helps you implement the first location, with your in-house team then continuing the upgrades at other locations.
- A Business Partner or outsourcer completes a pilot or proof of concept and does skills transfer, while your team completes the actual rollout.
- A Business Partner can also help you with training, documentation, and new database designs.

For more information on determining resources for a Domino upgrade, see *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

Audits

One of the important steps in planning an upgrade is a complete audit of your current Domino R4.x system. This will help you plan your schedule and budget, and determine if any hardware and software purchases are required.

Understanding your current system also enables you to build meaningful test cases to compare the old and new systems. Most important, having a clear and accurate picture of the system you are upgrading from will help you to evaluate whether the upgrade is successful, and what performance expectations are realistic for your upgraded system.

At the same time, you should examine all of your Domino R4.x applications. Though the upgrade of your Domino applications to R5 design will be the last phase of your project, you will need to test that your existing Domino applications will run in R4.x format on your Domino R5 servers.

Tip Use a Lotus Notes database to keep track of the audit results, which can then highlight the items that need to be upgraded, and update the database as you upgrade.

Some of the items you should consider in your audit are covered in the following sections.

Clients

Here is a list of client-related items to consider in your audit:

- Notes client code levels, including builds
- Hardware — RAM, disk space
- Operating systems
- Network protocols used
- Web clients used
- Which version of mail template used
- Client license type

Servers

Here is a list of server-related items to consider in your audit:

- Domino server code levels, including builds
- Hardware — RAM, disk space
- Operating systems

- Network protocols used
- Server task dedication such as hub, spoke, SMTP
- Server license type
- Add-on products such as Domino Fax, NotesPump

Application functionality

Here is a list of application-related items to consider in your audit:

- Workflow
- Appearance
- Keyword fields
- Author fields
- Reader fields
- Views
- Navigators
- Actions
- Buttons
- Hotspots
- Dialog boxes
- Hidden fields, hide/when formulas
- Computed fields
- Validation formulas
- Translation formulas
- Sections, regular and access-controlled
- Tables
- Agents
- Database lookups
- External data access

Tip Use the Design synopsis feature of R5 to help you start your application audits. Set up an application registry and use it to keep track of databases that have been tested and upgraded.

Creating a plan

Though the Domino R4.x to R5 upgrade is not technically difficult, there are many issues and interdependencies to consider. For this reason, formal project management and project planning will provide beneficial input to, and control of, your upgrade process.

Moving to Notes and Domino Release 5, Lotus part number CT6E3NA, and the IBM redbook *A Roadmap for Deploying Domino in the Organization*, IBM order number SG24-5617, Lotus part number CT6P8NA, both contain excellent information on setting up a formal project and project plan. The following sections provide a brief overview of some considerations when creating a plan.

Identify team members

When putting together the project team, include a broad selection of management, support or delivery and strategic teams in your organization. Identify a Project Manager or Project Leader who will be responsible for the project schedule and relay issues and updates to management. Delegate responsibilities to the team members. As the project will probably take a few months, check the project team members' personal schedules for times off, such as training and vacations. Also, identify any major public holidays during the estimated project schedule, and build in contingencies.

Depending on the complexity of your Notes environment, and your company's organization, some of the roles or skills you might require for a Domino upgrade project are:

- Project Manager
- Representative end users
- Domino administrators
- Network operations
- Help desk
- Training group
- Workstation support team
- Operating system support team for your Domino platform
- Security team
- Notes application developers

Tip Have each project team member identify a backup from their department who will be able to stand in for them during absences.

Planning

Outline the major project phases, using this redbook as a guideline. Determine when server and client upgrades will happen, and specify any interdependencies.

Determine the frequency and location of team meetings. Ensure agendas are distributed for all meetings. Determine where and when documentation is required.

Determine lead times and subsequent purchase dates for any hardware or software requirements. Note milestones for delivery dates. Allow for contingencies.

Remember to include training requirements in your project plan.

Communication

Communication is the key to a smoothly running project, and Domino R4 and R5 are the perfect tools to help you with any communication requirements. Utilize your Domino systems to help manage change control, minutes, issue management, data collection, project tracking, and knowledge management. You can communicate with project members within your company as well as those external to your organization using Domino tools.

Communicate the upgrade to any external companies that share information with you using Domino databases through replication. Identify any issues and key dates.

Change management and problem resolution

Set up your project guidelines on change management and problem resolution.

Change management is the process of planning, scheduling, approving, and then monitoring any changes that may affect the delivery of service to your organization. Problem resolution is the process of identifying problems that will affect the accomplishment of the scheduled project, determining impacts, and deciding the best methods of mitigation or solution.

Consider if change management and problem resolution will be handled differently during the testing, pilot, and production phases of your project.

Lotus releases scheduled QMRs (Quarterly Maintenance Releases) which generally contain enhancements and fixes since the last QMR was issued, and QMUs (Quarterly Maintenance Updates) which contain fixes to specific problems that may occur between releases. Identify likely release dates in your project schedule, and determine how QMRs and QMUs will be handled in the project.

Hardware and software considerations

The following sections cover aspects relating to hardware and software considerations for your upgrade project.

Servers

First, let's look at the server side of the upgrade project.

Disk space

All operating systems require at least 750MB disk space. We recommend that you allow for at least 1GB.

When determining disk space requirements for the Domino server code, remember to allow enough space for the upgrade procedure to delete previous code.

Backup space should be reserved on either hard disk or tape; a hard disk provides faster access.

Recommendations for swap space

<i>Operating system</i>	<i>Recommended swap space size</i>
AIX and Solaris	3 x physical RAM
NT	64MB

Storing program files and data files

In an NT environment, Lotus recommends the following:

- C: for operating system and swap files
- D: for Domino program files
- E: for Domino data files
- F: for transaction logging, if used

Transaction logging

The recommendation for transaction logging is to store the transaction log files on a separate mirror device, such as a Raid 0 or Raid 1 device with its own dedicated controller. Transaction logs require at least 1GB of disk space, but can use up to 4GB files.

For more information on transaction logging configuration and setup, see Chapter 13, "Transaction logging."

Memory requirements

Memory requirements for Domino servers will depend in part on the usage of the Domino server in your system, whether it is used for mail, applications, hub, Web, or a combination of uses. The requirements also depend on how many users connect to the server.

The following table outlines the basic minimum for the Domino server to run on the specified platforms.

Memory requirements

<i>Operating system</i>	<i>Minimum memory requirements</i>	<i>Recommended memory</i>
NT	48MB	94MB
AIX, Solaris	64MB	128MB

Mail template size

The size of the mail template has increased in R5. The reasons for this are twofold. The first reason is that the template has been reorganized and has more functionality; this is covered in greater detail in Chapter 15, "Mail."

The other reason is that the Web mail template has been combined into the mail template. In R4.5 or R4.6, Lotus provided a Notes mail, Web mail, and a combined Notes/Web mail template. Administrators could distribute a Notes mail template that did not have any of the Web code in it. This was particularly useful for companies that did not have a need or desire to provide access to mail via a browser.

The following table shows the increase in size for the mail template.

<i>Release 4.57 / 4.65 Notes mail templates</i>	<i>R5 combined Notes/Web mail template</i>
1.944K / 2.182K	5.256K

This increase in size is particularly important from a planning perspective. Administrators need to ensure that enough disk space is available prior to upgrading the server to R5.

Directory catalogs

You can now install a directory catalog (also called a dircat) to replace the current consolidated directories on mail servers for name lookups when sending mail, or for authentication on Web servers. This can save a lot of space on the server.

A directory catalog can combine entries from many Domino Directories and can still be very small. For example, several Domino Directories that separately contain more than 350,000 users with a total size of 3GB, are likely to be only about 50MB when combined into a directory catalog. In general, each entry in the directory catalog is slightly more than 100 bytes.

Companies can also consider the option of deploying dircats to just a few servers or to all mail and Web servers for the lookups. If bandwidth is sufficient, you can even have a dedicated dircat server on which all lookups are done.

Full-text indexes

Full-text indexes in Domino R5 are approximately 50% larger than in Domino R4.x.

View build directory

You can now specify the view build directory in Domino R5 with the NOTES.INI parameter VIEW_REBUILD_DIR = “full path of directory or filesystem.” This can be a directory in an existing file system, or a dedicated file system for the view builds.

It is not a requirement to set this variable. If a view rebuild directory is not specified, the same functionality is available as in Domino R4. In that case, the temporary directory of the operating system will be used.

In-place compaction

In-place compaction eliminates the need for free disk space on which to compact databases, as is required for the largest database on an R4 server (up to 4GB).

Tip For more information on the server platform requirements, see the R5 Release Notes that come with the product, or visit the Lotus Notes Web site at www.notes.net

Clients

Now let's look at the client side of the upgrade project.

Hard disk requirements

The following table shows hard disk requirements for the client:

<i>Client</i>	<i>Minimum</i>	<i>Recommended</i>
Notes Client — Win 95/98 and NT	69MB	112MB
Notes Designer — Win 95/98 and NT	70MB	236MB
Notes Administrator — Win 95/98 and NT	78MB	182MB

Memory requirements

The following table shows memory requirements for the client:

<i>Operating system</i>	<i>Minimum</i>	<i>Recommended</i>
Win 95/98	8MB	64MB 128MB (if you run Notes and Administrator or Designer)
NT	16MB	64MB 128MB (if you run Notes and Administrator or Designer)

Note There is no longer a Notes client for Windows 3.1, UNIX, or OS/2 Warp in R5. You may want to consider working around this by using the Web client.

Monitor display size

According to the Release Notes, while a 640 x 480 resolution will still work on your client, a minimum of 800 x 600 is recommended for use with the new R5 templates. For an example of how the lower resolution will affect you if you are using a 640 x 480 resolution, see the section in Chapter 1, “Ease of using the Notes R5 client.”

Other considerations

As noted previously regarding servers, the following should also be taken into consideration for the client:

- Mail file size
- Directory catalogs

Domino R5 testing

Testing is a critical part of your Domino R5 upgrade project. The testing phase of your project includes developing your test plans, testing, and documenting the findings. Your test phase should also include testing of contingency rollback for all critical portions of the implementation plan.

Tools

Your organization may have its own administration tools, either developed in-house or customized versions of vendor products. Lotus Notes and Domino provide tools that are enhanced with each release, to provide you with more automation and functionality. When testing:

- Ensure that your existing tools used for administration are compatible with Domino R5.

- Determine which tools have been superseded by new Domino R5 functionality and can now be removed.

Note If you remove customized tools from your environment and replace them with Domino R5 functionality, be sure to update your procedure documentation.

Timing

One benefit of testing your upgrade process before general rollout is that it enables you to determine how long a Domino R4.x to R5 server upgrade will actually take.

The most time-consuming tasks in your Domino R4.x to R5 server upgrade will probably be the upgrade of the ODS to R5 format, and any design upgrades. We suggest that you separate the upgrade of ODS and design upgrades, so that you can be sure that the Domino server is running at optimum levels before introducing new factors.

Take into consideration any preparation that may be required before starting the upgrade, such as updating NOTES.INI parameters or hardware upgrades. Review the next section to ensure that as much preparation as possible is completed before the actual upgrade is done. Upgrading the Domino server code on your server will usually take between fifteen and thirty minutes.

The length of time taken to upgrade your database on-disk structure to Domino R5 format will depend in part on the type of hardware you have. We recommend you follow these steps:

1. First, run fixup across all databases.
2. Next, compact once to upgrade the ODS to R5 and a second time to compact the databases.
3. Finally, run updll across all databases which have had their ODS upgraded. This will ensure that users opening the database will not experience an extended delay as the view indexes are rebuilt.

For a complete ODS upgrade of the minimum set of system databases in the root NOTES\DATA directory, a minimum of 2.5 hours conversion time should be anticipated.

Tip Since it may take quite some time to upgrade the ODS and refresh the view indexes for all the databases on mail or application servers, consider upgrading the server code and upgrading system databases to the new ODS during week days, and upgrading mail or applications to the new ODS at a time when it will have less impact on your users, such as on a weekend. You may be able to use program documents to automate the tasks on servers.

Tip If you decide to separate the upgrade of system and mail or application databases to the new ODS, remember to disable any program documents calling the compact task.

Test lab

Your test lab should be a snapshot of your current Domino system, with servers and clients that mimic your current environment. If possible, a test lab should contain the same hardware setup as your production environment.

It may not be possible or cost-effective to have multiple servers dedicated to a test lab so that you have all the configurations of your production environment available in your test lab. Therefore, it may be necessary to test discrete scenarios sequentially within your test lab. If you are unable to set up a test lab with all possible configurations, allow additional time in the project plan for a testing phase.

When setting up the test lab, consider the need to upgrade to Domino R5 as well as the need to test the coexistence of Domino R4.x and Domino R5 within your environment

Some considerations when setting up a test lab are:

1. Base hardware configuration
 - 128MB RAM, 4GB hard drive for servers
 - 84MB RAM for clients
 - Additional hardware requirements for new features to be tested
2. Requirements for operating system in addition to base hardware configuration
3. Include all Notes/Domino configurations you will be supporting in your test plans
 - Notes clients
 - Web clients
 - Domino Designer client
 - Domino Administrator client
 - Web Administrator client
 - Domino server (including versions for coexistence)
4. Consider other network infrastructure requirements
 - File server
 - Remote access servers

5. Network configuration and connectivity
 - Network protocols — TCP/IP and others
 - Domain name service
 - Connection to the Internet
 - Modems
6. Applications
 - Notes applications
 - Custom-developed applications
 - Add-on applications or products
 - Tools

Test cases

Your test cases should identify functionality that can be performed on a Domino R4 server, to determine whether the same functionality is available on a Domino R5 server.

Tip Set up a Lotus Notes database that contains your test cases. This database could then include an outline of the steps taken when testing, your findings, including details on whether the functionality exists but the procedure in R5 is different, troubleshooting and results.

This database could also be used by the project team as the technical issue log.

There are many areas you will need to test, and the critical areas will differ from site to site. Therefore, it is impossible to list them all. Below are a few pointers to prompt you when creating your test cases.

Server

On the server side, consider testing the following areas:

- Coexistence with R4 servers
- Upgrade path from R4.x to R5
- Performance testing and benchmarking
- Name and address book to Domino Directory and the directory catalog
- ODS upgrade
- Mail routing — NRPC and SMTP

- Administration processes
 - Creating users
 - Recertifications
 - ID restoration
 - Monitoring
 - Creating holidays
 - Mail file moves
 - MAP
- Administration databases
 - Resource reservations
 - Adminp
 - Events and statrep
 - Catalog
- Transaction logging

Applications

Perform all tests listed below using these scenarios:

- A Notes R5 client accessing the Domino R5 server
- A Notes R4 client accessing the Domino R5 server
- Replication with an R4.x server
- Testing of the application on the R4.x server after replication.

Test all applications after applying any R5 templates and converting to R5 ODS, by running compact and then rebuilding indexes with updll.

Consider testing the following areas:

- Create, save and edit documents using each form in the application, including hidden forms.
- Recreate full-text indexes and test under R5.
- Notes design checklist:
 - Are all editable fields working correctly?
 - Are all computed fields working correctly?
 - Do all database lookups work properly?
 - Do all the buttons work correctly?
 - Do all actions work properly?

- Is everything displayed as expected?
- Do all the views in the database open?
- Do all columns display the appropriate data?
- Are all documents displayed and the selection formulas working?
- Are all categories working properly?
- Are sort-on-the fly columns working?
- If external data is used in applications, edit the external data and check to be sure it is updated in the application.
- If the application uses OLE objects, test creating and launching the objects.
- Check all agents by running them, including scheduled agents.
- Test security.
 - ACL
 - Roles
 - Reader fields
 - Authors fields
 - Encrypted fields
 - Test selective replication formulas
- Test e-mail enabled applications.

Rollback

With proper planning and testing, you should not have to revert your R5 Domino server back to a previous R4.x code level. However, there may be instances where customized mail databases or applications, or third-party products, do not work as expected when you upgrade Domino in your production environment.

It is a good idea to plan for this in your pilot and rollout strategy. One option is to maintain a clustered server at the Domino R4.x code stream clustered to the Domino R4.x server that is upgraded to Domino R5.

Clustering your production mail servers to a Domino R4.x server after they have been upgraded will allow the upgrade team to do troubleshooting and fixes without interrupting the productivity of users of the Domino server.

When clustering Domino R4.x and R5 servers, selective replication formulas are not enforced by cluster replication. Therefore, the mail files cannot be upgraded to the new R5 design, as the R5 design will replicate to the R4.x server and R5 mail will not work properly on R4.x servers.

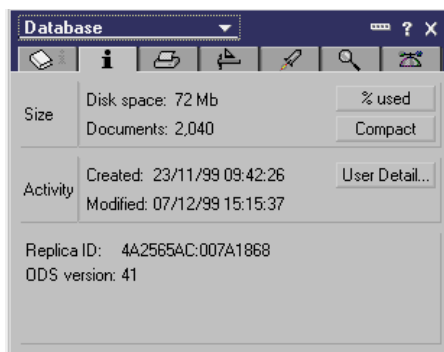
You could also use a separate server on standby, at the Domino R4.x code stream, that could be built within an acceptable timeframe using your disaster and recovery procedures.

For more information on disaster and recovery procedures, see Chapter 22, “Contingency Planning,” in the redbook *A Roadmap for Deploying Domino in the Organization*, IBM order number SG24-5617, Lotus part number CT6P8NA.

On-disk structure

The on-disk structure provided by Domino, once upgraded to a Domino R5 format, can be reversed on a Domino R5 server back to a Domino R4.x format.

You can view the on-disk structure level using a Domino R5 client by displaying the Information Tab in the Database Properties box.



The following table shows the on-disk structure levels pertaining to specific Domino release levels.

Domino on-disk structure levels

<i>Domino release level</i>	<i>On-disk structure level</i>
Domino R3.x	17
Domino R4.x	20
Domino R5	41

Tip Domino R4.x databases are upgraded to the R5 ODS via the compact command. To revert the database structure to a Domino R4.x release, issue a compact -r from the server console.

Documentation

At the end of the test phase, you should have a complete documentation of the rollout procedures and any changes to administration and help desk procedures.

Third-party and add-in products

For a complete list of compatible and supported products for Domino R5, check with the supplier or on the Lotus Web site at www.lotus.com

<i>Supported and working with Domino R5</i>	<i>Not supported in Domino R5</i>
cc:Mail MTA 4.6.4.2 Compatible with mixed R4.x and R5 environments eSuite DevPack 2.0 Supported with R5 http://esuite.lotus.com Mobile Services for Domino 1.0 Supported with Domino R5 (new version of Pager Gateway 2.03 w/Wireless Domino Access)	Lotus Components R1.2 Notes View Pager Gateway 2.03 w/ Wireless Domino Access 1.01 Not certified for R5 servers, keep on Domino R4.x server platform to run in a mixed environment
Lotus Components R1.3 is certified for R5 Free upgrade available at: http://esuite.lotus.com/components/components.nsf Fax for Domino (FxD) R4.1 EasySync 3.0a SmartSuite Approach 9.5 (Millennium Edition) is required to read R5 database format	

Rearchitecturing your environment

While preparing for a Domino R4.x to R5 upgrade, it is also a good idea to consider some of the scenarios possible for rearchitecturing your mail domains. Mail routing capabilities have been expanded in Domino R5 to include native SMTP and native storage of messages as MIME, which allows many new configurations of your mail architecture.

See Chapter 9, "Messaging," for more information on Domino R5 mail capabilities and setup.

Some of the options available to you are:

- Leave your R4 MTA servers in place
- Replace all R4 MTAs with R5 mail servers first
- Replace all R4 MTAs with R5 mail servers during system upgrade
- Rework the messaging infrastructure
- Use a mixed MTA upgrade strategy

These options are described in detail in the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA, and *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

Performing a pilot

A pilot is a minimal rollout to a small group of servers and users for a period of time to determine stability and iron out any problems not caught during testing. The length of your pilot project should be determined by the number and severity of any problems encountered.

A pilot can also allow you to train specific groups, such as the administration and help desk staff, in the new technology before upgrading your production servers and clients. Try to have your pilot system mimic your current Domino system as much as possible. If you have partitioned or clustered servers, plan hardware that will allow for these configurations.

When choosing a pilot user group, remember that you may not be able to support as many users in a pilot as you normally would on the same hardware in a production environment. This is usually due to limited resources of pilot machines, concurrent testing of different configurations during the pilot, and machines not being optimized for performance.

Caution It is not recommended that you upgrade one of your current production servers as a pilot server.

Once you have determined the number of end users your pilot hardware can support, select a cross-section of users as the pilot team. After you have identified your group, try not to give in to pressure to add more people to the group. Remember that your hardware will probably not support more people, and it will increase the administration of the pilot server, which will make it harder for the support team to complete both their regular duties and their R5 testing responsibilities.

Tip Create a Notes discussion database for users to post their thoughts and experiences with Domino/Notes during the pilot. This will give you a record of issues to address, and it will also give the pilot users an application to experiment with.

It may be necessary for pilot users to have both clients on their desktops. During the pilot, not all your R4.x databases may have been tested for coexistence and compatibility with Domino R5. To ensure that the pilot users are able to use the new R5 mail features, but can also continue working as normal with all company design databases, plan for users to have both Domino R4.x and R5 on their desktops, or at least to have access to a desktop that has Domino R4.x available.

During the pilot, try to simulate a production environment as much as possible. Keep the servers up and running, and notify the users when you need to bring them down. Set up the server as you would any production server, with the appropriate security, tune for Domino and the operating system, have backups in place, and ensure daily checks of the server take place. Look at your current maintenance schedules and identify if any changes need to be made for the pilot server.

Determine the level of support required for the server. For example, will the help desk still take calls related to Domino R5 users or problems, or will they be sent directly to the upgrade or pilot group, or a project manager for distribution? Is it necessary for representatives of each of the support groups to be on call after hours for the pilot server?

When the pilot is finished, you should review the pilot outcome, issues and user evaluations and opinions. Evaluate each of the problems that were raised, and determine possible ways around them. From your results, you can make any adjustments required to your full rollout plans.

For more suggestions on setting up a Notes/Domino pilot, see Chapter 6, “Setting up a Notes/Domino Pilot,” in the IBM redbook *A Roadmap for Deploying Domino in the Organization*, IBM order number SG24-5617, Lotus part number CT6P8NA, or the product documentation *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

Lotus Notes licenses

In Domino R5, the Notes.id license types have changed. Notes licenses no longer implement security through the Notes.id. When users are upgraded to Domino R5 clients, their Notes.id is upgraded to a Lotus Notes Full License.

Therefore, Designer or Administrator clients can perform Designer or Administrator actions as long as they have permission through Access Control Lists (ACLs) or server configurations.

Administrators can ensure Domino security by distributing only the Notes clients that the users require. As the code for clients is available on the Web for download, administrators should ensure that ACLs and server document settings are secure to prevent inappropriate access.

There are three types of Notes R5 clients:

- Notes client
This is the standard type of Notes client, without design features.
- Domino Designer
The Notes client with design environment and design features.
- Domino Administrator
The Notes client with administration environment and administrative tasks.

The Notes R5 person document contains the following license types:

- Lotus Notes
- Lotus Notes Mail
- Lotus Notes Desktop
- Lotus Notes Designer
- Lotus Notes Administrator

These license types are only for backward compatibility to R4.x.

Preparing for the rollout

This section covers factors relating to the preparation of the rollout.

Preparation

While you are planning and testing your Domino R4.x to R5 upgrade, you can also get ready for the upgrade to your Domino production systems.

Based on your audit, determine what hardware upgrades or additions are required, and implement them. Identify any operating systems which require upgrades and implement them also. If you are currently not using Domino, perform an administration Execution Control List (ECL) setup before moving to Domino R5. Refer to Chapter 11, “Security,” for more details.

Distribute any new administration tools, APIs, or NOTES.INI settings to servers.

Upgrade most of your administration clients to Domino R5. Include all groups that need to administer the Domino Directory, such as Notes ID administrators and help desk personnel.

Cleaning up your existing Domino R4 system

Before you start your upgrade, it is recommended that you ensure that your current Domino system is as up-to-date and pristine as possible. If you have the most recent software versions installed, and avoid migrating files that are no longer needed, your migration will be swifter and more trouble-free.

Some of the steps you can take to clean up your Domino R4.x environment include:

- Remove backup copies of LOG.NSF files.
- Remove backup copies of NOTES.INI files.
- Remove unused scripts and tools on the servers.
- Remove core dump or troubleshooting files left on the servers.
- Remove restored files from backups no longer used.
- Remove any unused connection documents or domain documents.
- Remove any unused cross-certificates.
- Consolidate groups.
- Change your replication schedule to avoid duplication.
- List all changes made to the Public Address Book.

- Remove any users not being utilized.
- Remove all databases not used in the past four months.
- Collect all IDs, and remove all unused IDs and person documents.
- Upgrade to hierarchical naming.
- Upgrade mail to 4.5.7 or 4.6.3b for coexistence with R5 mail.
- Upgrade all Notes user IDs created prior to Domino R4.
- Evaluate placement and clustering of databases.

Summary

In this chapter, we discussed some of the requirements for planning a Domino R4.x to R5 upgrade project. This included evaluating personnel requirements for your project, auditing your current systems, setting up a test lab and testing, performing a pilot, and identifying some of the work that can be done on your production systems in parallel with your testing, before upgrading your environment to R5.

Chapter 6

Rollout considerations for upgrading to R5

This chapter provides you with the information you need to develop a rollout plan for upgrading your Lotus Notes/Domino infrastructure to R5. The previous chapter focused on individual server and client aspects such as the hardware and the operating system. Now, we are going to take a look at your whole Domino infrastructure, and how it can be upgraded smoothly to R5.

These are the topics covered:

- Upgrade sequence
- Upgrade considerations for the Domino Directory
- Upgrade considerations for servers
- Upgrade considerations for clients
- Upgrade considerations for applications
- Coexistence issues
- New server licensing
- Summary

Upgrade sequence

When developing Domino R5, the goal was to make the upgrade as seamless as possible, while at the same time including as many enhancements as possible in the new release.

The R5 upgrade can be accomplished very smoothly and seamlessly. One reason for this is that the Domino Directory is backward compatible. Although this new directory, formerly known as the Public Address Book (PAB), is enhanced with many new features, fields and designs, it also runs on an R4 Domino server without any problems. The Release 4.5.x/4.6.x server ignores all the R5 features and finds the information needed.

We believe that one of the primary goals when deciding on an appropriate upgrade sequence should be to avoid disruption for the users, while trying to leverage R5 enhancements as soon as possible.

This is the recommended order to upgrade your environment, which both Lotus and IBM have followed successfully:

1. Domino Directory
2. Hub servers
3. Spoke servers
4. Clients
5. Applications

How complex the upgrade will be depends on your specific infrastructure. For example, a centralized server farm administered by a single group will have a completely different rollout approach than a world-wide, multiple domain environment. Still, both should try to stick to that general order of steps.

Although the following sequence may be adjusted to your own needs, we do recommend that you follow these rules closely:

1. Apply the Domino Directory design to the first R5 server you upgrade.
2. Server and clients need to be upgraded *before* you make use of any R5 design features in applications and templates.

We have experienced individual customer situations where this sequence does not fit perfectly. For example, if you are running just a mail environment world-wide, and you want to introduce application and Web servers to that infrastructure to meet your business needs, you may not want to upgrade your central hub server right away.

In that case, you would probably want to add R5 application servers to the R4 mail infrastructure, running an R4.6 Public Address Book. However, the actual upgrade of the whole environment would take place after an interim period, following the recommended order described previously.

In the following sections, we will discuss the individual steps and any related issues in more detail.

Upgrade considerations for the Domino Directory

The Domino Directory is backward-compatible, which allows you two approaches of upgrading:

- You can either upgrade the design of the PAB to the Domino Directory on your R4.5x/R4.6x server before installing the R5 server code.
- Or, you can upgrade the PAB to the Domino Directory in the process of installing the R5 server code.

Once you have upgraded your Directory, it will, in most cases, replicate its design throughout the Domino environment by default. In small sites, that might be an appropriate method. However, when you administer the Directory or the PAB in a distributed and remote manner, not all of the locations may be prepared for dealing with the R5 Domino Directory at once. Training has to be performed, and the R5 Administrator client might not be in place.

The following table illustrates the Directory versions supported and recommended by Lotus on the different Domino server releases:

<i>Domino Server Release</i>	<i>PAB Design 4.5.2</i>	<i>PAB Design 4.5.7</i>	<i>PAB Design 4.6.1</i>	<i>PAB Design 4.6.4</i>	<i>Domino Directory Design 5.0</i>
Server Code 4.5.2	S	S	S	S	S
Server Code 4.5.7	NS	S	S	S	S
Server Code 4.6.1	NS	NS	S	S	S
Server Code 4.6.4	NS	NS	NS	S	S
Server Code 5.0	NS	NS	NS	NS	S

Legend: S = Supported and recommended, NS = Not Supported and not recommended

Refer to Chapter 7, “Domino R5 server upgrade,” for more details on installing an R5 Domino server.

Controlling the distribution

In a far-ranging system where not all locations are prepared to deal with R5 at once, you need to control the distribution of the R5 design. There are basically two ways of controlling or limiting the design replication in the Domino Directory. They are described in the following sections.

First method

Under Advanced in the Replication Settings of the PAB, deselect Forms, Views, etc. and Agents.

Use to specify a certain R5 server or group of servers

Deselect options to eliminate design replication



Since this applies to incoming replication, and replication settings themselves do not replicate, this step needs to be done for each replica of the PAB required to keep the R4 design. In a widely spread environment, this can be a time-consuming procedure that is difficult to control. Also, if you run different designs within a cluster, be aware that the selective replication settings will be ignored.

Second method

Configure Editor access in the Access Control List (ACL) for the servers that replicate the R5 Domino Directory with servers containing the R4 PAB design.

The servers can be grouped to differentiate them from the regular LocalDomainServer entry in the ACL. If the administration server of the Domino Directory is involved in that replication scenario, this solution cannot be applied. The administration server needs to have Manager access to perform the administration process tasks and to replicate the design.

Note The Domino Directory template has the same replica ID as the R4 PAB template. When controlling the distribution of the R5 design, you must also remember not to replicate the templates, otherwise the R5 design will be implemented through the design task. Therefore, turn replication off for the R5 Domino Directory template.

Customization

Many sites customize their PAB to enhance functionality or to support applications. This customization might be as simple as a hidden view, or an additional field in a form, or as complex as scripts or agents.

If you have customized your PAB:

1. Evaluate the need for that functionality. Once you have upgraded, R5 enhancements may contain those features.
2. If needed, implement your changes in a R5 Domino Directory template (pubnames.ntf).
3. Upgrade your PAB to the customized R5 Domino Directory on an isolated machine or in a test environment.
4. Test thoroughly.
5. Let the design of the R5 Domino Directory replicate throughout your upgrade scope.

Note Do not use your customized R4 PAB and add the R5 design elements manually.

Also, consider changes in your Domino Directory that were made by third-party products like fax software. Check with the vendor for R5 compatibility.

Administrator client concerns

When you upgrade to the R5 Domino Directory, make sure that your administrators have the R5 Administrator client available. The R4 Notes client does not encounter any problems opening the Domino Directory. But it does use new R5 design features like tabbed tables, which make some documents appear very difficult to read in R4, especially complex ones like the server document. At a minimum, the core team of hub and server administrators should be able to access an R5 Administrator client, thus also leveraging the R5 benefits.

Caution When we used an R5 Administrator client prior to R5.01b to register users on an R4 server, we saw the following error message: “Recipient name not unique, too many found in Name & Address Book, buffer exceeded 64K byte limit.” This issue has been resolved in R5.01b. Make sure you use the latest product update.

Secondary address books

While thinking about your primary directory, you should also take into account any of the secondary address books you have on your server, such as a replica from a different domain. When you upgrade your servers, the template for the Public Address Book is automatically replaced by the Domino Directory, while keeping the same template name (pubnames.nsf and StdR4PublicAddressBook) as in R4. Depending on your individual server configuration and ACL settings, the new R5 design may be applied to the R4 secondary address book and replicate to the other domain.

In detail, this means that the design of all databases that are set to “Inherit Design from Template” with “StdR4PublicAddressBook” specified as the template name will be updated with the new design when the design task runs. This is true even if you selected “no” when prompted to upgrade the design at server launch.

It is important to consider the effect this has on any additional address books on your server. Let’s say you have configured secondary address books for use with mail addressing and/or Web authentication, either via Directory Assistance or the NAMES= line in the NOTES.INI. In addition, you have specified that these databases also inherit from the standard template. In that case the design of these databases will also be upgraded automatically when the design task runs. Depending on how the ACLs are set up, the design change could then propagate back to the originating domain. While the R5 design is supported on R4x servers, we recommend that this be a planned change, not an accidental one.

So, when upgrading a server that has multiple address books configured, make sure you decide which ones should have the design updated. If you do not want the design to be upgraded, you can disable the template inheritance, or you can change it to inherit from another template. For example, you can make a copy of the R4 template and give it another name. Set the databases to inherit based on that template instead.

Upgrade considerations for servers

The following sections cover upgrade considerations for the server.

Upgrading hub servers

In general, it is a good idea to upgrade the servers before upgrading the clients. This prevents clients from requesting a service the server is not able to accomplish because of the server’s lower release level.

Hub servers, in most cases, are used for replication and mail routing. Certain administrative tasks take place on those servers. User access is very limited if there is any at all. Because of that, hub servers are our first choice candidate to be upgraded. If you should encounter any problems, the impact on users is the least compared to mail or application servers. Furthermore, hub servers are generally few in number, and tend to be administered by highly skilled administrators.

In large enterprise sites, there will be more than one level of hub servers. Use a top-down approach when upgrading the hub servers, that is, start with the central hub and move on to the subhubs, making sure again that all the involved administrators have been trained and have access to an R5 Administrator client.

In most cases, a hub server also represents the *administration* server of the PAB, or the Domino Directory. This is another good reason for upgrading a hub server first. Since the initial upgrade step involved the Domino Directory, we want to make sure that the administration of the Domino Directory is taken care of as soon as possible. For example, there are several enhancements to the administration process (AdminP), including new request types, that should be utilized as soon as possible.

Even if your hub server is not the administration server of the Domino Directory, upgrade the administration server as soon as possible. You might even want to consider upgrading the administration server first, if it is dedicated to that role and has no users connecting to it.

Tip Set up a discussion or knowledge database to document and share the upgrade experiences, problems and tips, especially when you have a widely decentralized and remote administration.

Upgrading spoke servers

In the process of upgrading your PAB and the hub servers, you will gain a great deal of experience. Since your procedures have been established in real-life situations, they have been fine-tuned, and represent the best practices for your particular circumstances.

You can leverage that knowledge when upgrading your spoke servers. Spoke servers consisting of mainly mail and application servers make up a major part of any infrastructure, and they host business-valuable information and procedures. Remember to reflect your specific server types in the test environment.

If you have a decentralized infrastructure which is administered by remote groups, you should involve these groups in the upgrade project at a very early stage. You want to make sure they benefit from the knowledge gained through your experience as well.

Mail servers

Mail servers are heavily accessed by end users, which makes them a sensitive element in the upgrade process.

Since the upgrade of end-user clients is the final step, you do not want to upgrade the mail template to R5 as part of the server upgrade. That needs to be done separately. Wait until all the clients are upgraded to R5 before you upgrade the users' mail files. Of course, large user communities can be split up into logical groups to be upgraded separately.

Note For *mail template interoperability* between R4.x and R5, the R4 *mail templates* need to be at least on release level R4.6.3b or R4.5.7. See Chapter 15, "Mail," for more details.

The following table shows the interoperability of the different mail template releases on different Domino server releases as supported and recommended by Lotus:

	<i>Mail Design 4.5.2</i>	<i>Mail Design 4.5.7</i>	<i>Mail Design 4.6.1</i>	<i>Mail Design 4.6.4</i>	<i>Mail Design 5.0</i>
Server & Client 4.5.2	S	S	NS	NS	NS
Server & Client 4.5.7	S	S	NS	NS	NS
Server & Client 4.6.1	S	S	S	S	NS
Server & Client 4.6.4	S	S	S	S	NS
Server & Client 5.0	S	S	S	S	S
Server 4.6.4, Client 4.5.2	S	S	NS	NS	NS
Server 4.6.4, Client 4.6.1	S	S	S	S	NS
Server 5.0, Client 4.6.4	S	S	S	S	NS

Legend: S = Supported and recommended, NS = Not Supported and not recommended

For performance reasons, an upgrade of the On-Disk Structure (ODS) level can be useful. This does not interfere with the R4 client or any R4 server replication. Refer to Chapter 5 "Planning for your Domino R5 upgrade," for details on the ODS.

Application servers

Basically, the same applies to application servers as to mail servers. Again, applications should not make use of any R5 design features until the R5 client is in place for the specific user group, although the ODS level can be upgraded.

Other servers

In addition to mail servers and application servers, many companies have introduced special servers for certain functionality, for example, SMTP MTA, fax gateway, etc.

If you have third-party products installed, check with the vendor for compatibility issues or for a newer version of the product.

As for SMTP, you may need to consider re-engineering your architecture. R5 introduces native SMTP routing; see Chapter 9, “Messaging,” for more information.

Upgrading services

The services provided by a server are mostly determined by its dedication or role in the environment. For example, a hub server provides replication and routing, whereas an application server provides database access to users, and replication.

When upgrading to R5, the basic services like replication and routing are handled automatically. The SMTP MTA settings will work as configured for R4. User access is taken care of. An upgraded server will basically work as configured in R4.

Tip Refer to Parts 3 and 5 of this redbook for details on the implementation. However, there are major enhancements to consider when upgrading. The following list gives you an idea of what new features should be considered in your upgrade plans. Detailed information on each feature is provided throughout this redbook.

- Multiple mailboxes
- Routing control
- Message tracking
- Transaction logging
- Internet clustering
- Directory catalog
- Domain search
- Password recovery

Although there are many benefits of using one or more of these new features, we do recommend that you finish the R5 server upgrade before implementing major service changes or new functionality. Once a server is upgraded, there should be a frozen zone, where no configuration changes are performed. This will eliminate possible sources of errors and problems. There is no need to apply this to the whole server upgrade process, but more likely to a group of servers at the same time, determined by dedication or location.

Once the upgraded server performs as expected, the step to enhanced functionality can be taken. Keep in mind that this needs to be planned beforehand, to prepare for hardware, network and end user implications.

For example, if you have an infrastructure with several mail hub servers, you might want to consider implementing multiple mailboxes very early in your upgrade process for additional performance. This can be done even before the mail spoke servers or the clients are upgraded.

Clustering

Basically, the described upgrade considerations also apply to clustered servers. If you have R4 and R5 servers in the same cluster, there are a number of things to keep in mind:

- You can cluster R4 and R5 servers, thus allowing a sequential upgrade in a cluster.
- This also provides a good backup solution, when upgrading a first server, for example in your pilot. You can install a cluster partner as a backup, do the upgrade, and always have the backup cluster partner in place if something should go wrong.
- Since the selective replication settings are not enforced in a cluster, the design will replicate freely. Do not upgrade the mail design in a mixed environment because it will not work properly on the R4 server.
- Within R5 Calendaring and Scheduling, the free-time search will now fail over to the cluster partner. When upgrading, busy time.nsf is automatically changed to clubusy.nsf.
- In R5, clustering is also provided for Web clients through the Internet Cluster Manager (ICM). The ICM is a separate task with configurations separate from the regular clustering. Plan beforehand when considering using ICM.
- The NOTES.INI parameter **MAILCLUSTERFAILOVER = 1** is obsolete. You can control router behavior through the configuration documents.

Upgrade considerations for clients

The following sections cover rollout considerations for a successful client upgrade.

Training

We strongly recommend training in the use of the R5 client since the client and all of its functions went through a major redesign. This includes many new features that make the user's daily work more convenient. To benefit from the new design and the new enhancements as soon as possible, an education plan for your users is needed, including end users, supporters, administrators and designers.

Based on our experiences with R5, the Notes client gives users great power to organize their desktop, thus enabling them to become more efficient. However, it is probably a good idea to streamline this power in order to keep the motivation up and the support issues down. Initial training can provide that, and help increase the productivity of your end users.

Installation aspects

The Notes R5 client, as well as the Domino R5 server, rely on the InstallShield as their installation technology. The InstallShield allows a silent installation, which means the installation procedure is automated, and no user interaction is needed.

The silent installation is based on a response file, which needs to be created beforehand, specifying all the individual features and settings of your particular client setup.

From the Install directory, type `SETUP -R`. This action creates the response file, `SETUP.ISS`, which is stored in your system directory. The `SETUP.IIS` file will reflect your settings. You can then copy your Notes installation files and the `SETUP.ISS` file to a network drive, for example, which is generally accessible for your end users. The users can then start the installation using the setup response file from the network.

Example syntax: `setup.exe -s -f1c:\myresponse.iss -f2c:\logdir\mylog.log`

During the Notes installation, you will see no indication that the install is running. No program windows are opened, and no dialog boxes or progress bars are displayed. When the installation is complete, the Lotus Product Registration windows appear on the screen, to be filled out or closed by the user.

The InstallShield provides many customization functionalities to incorporate any individual needs. Refer to the InstallShield Web site for more details:

www.installshield.com

A closer look at the silent installation can be found in the knowledge base of InstallShield at this site. Use the following URL for copy and paste:

```
http://support.installshield.com/kb/default.asp?action=Display&documents_id=101901&productname=&category=&code=&documentnumber=Q101901&selectproductname=InstallShield__5&selectcategory=&selectkeyword=&documentnumber2=&old_document_number=&rn_descriptor=&contents=Creating%20a%20Silent%20Installation%20&org=search&onlyOne=yes&date_published=1/1/90
```

Note With R5.0.1b, a new switch for silent install is introduced, which controls whether the user's system will reboot or not without prompting the user. The syntax is: `setup.exe [no]reboot -s -f1[path]setup.iss`.

For a large-scale software distribution, many sites have a third-party systems management tool in-place. In our experience, the Lotus Notes client can be well integrated into many software distribution solutions. Most of the time, they offer an installation wizard that records your installation, including all the configurations, and creates an image. This image can then be pushed to the desktops of end users, making any user interaction obsolete.

Welcome page

The Notes R5 client introduces a new user interface giving a browser-like look and feel. It is based on the database BOOKMARK.NSF. For a detailed look at the new interface, refer to Chapter 1, "Ease of using the Notes R5 client."

The BOOKMARK.NSF offers a Welcome page as the entry point for the user. It summarizes all the user's important information, such as the inbox, calendar, to do lists, or Web pages. By default, users can customize this Welcome page.

Based on R5 rollouts and customer situations we experienced, a policy for dealing with the Welcome page needs to be developed. Some of the aspects are discussed below.

Use Welcome page or workspace when upgrading

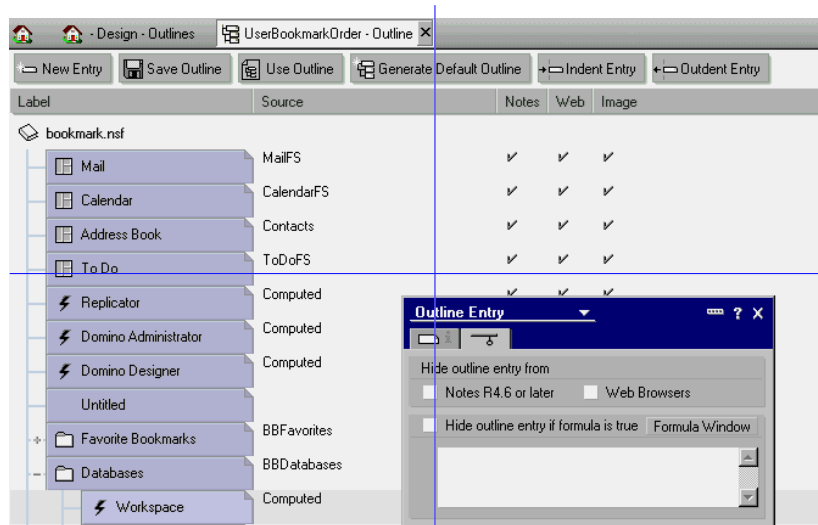
End-user training is always a concern when upgrading to a new release. For new users, the R5 client user interface is very intuitive. When upgrading existing users, you might want to give them the familiar workspace (desktop.dsk) instead as a starting point. This can help them get used to the

new release enabling your users to explore the new features, while still working with the familiar look-and-feel of Notes.

You can customize the bookmark template before rolling out the Notes R5 client and set the workspace to launch as the default home page. As users become more comfortable with the new interface, they can choose their own home page by using the mouse to right-click on a bookmark entry and selecting “Set Bookmark as Home Page.” The Welcome database is located in the Favorites bookmark folder, or users can choose any other database as their launch option.

Follow these steps to customize BOOKMARK.NTF to launch the workspace as the default home page:

1. Launch the R5 Designer client.
2. Open BOOKMARK.NTF.
3. Select Outlines.
4. Edit the UserBookmarkOrder outline.
5. Expand the Databases outline label entry.
6. Select the Workspace entry.
7. Open the Outline Entry Properties box and go to the hide-when tab.
8. Hold down the Shift key.
9. Under Hide outline entry from, toggle (select and deselect) the Notes R4.6 or later check box.



When installing the Notes client, substitute your modified BOOKMARK.NTF for the default template. When the user launches Notes for the first time, it

will still create the bookmarks database (BOOKMARK.NSF) and copy all their workspace icons into bookmark folders, but instead of seeing the Welcome page, they will see the workspace icons.

Note After the first setup of the bookmarks from the DESKTOP.DSK, there is no further synchronization between the two. Users can resynchronize newly added icons into bookmark folders by closing Notes, deleting the BOOKMARK.NSF file, and restarting Notes. However, this is one-way only. Changes made directly to the bookmark folders cannot be synchronized with the DESKTOP.DSK. For this reason, users should be encouraged to become comfortable with, and move to the new bookmarks interface, as quickly as possible.

Is the Welcome page customizable by the end user or static?

The default BOOKMARK.NSF template allows end users to customize their Welcome page or to add individual new pages. This may help advanced users to improve the organization of their information. However, in large enterprises this can also result in missing important information, for example when Web pages are removed from the Welcome page.

Errors resulting from wrong customization need to be handled by the support team. These issues may result in the definition of a static company-wide Welcome page which is not editable by end users. The whole customization functionality can be taken out of the BOOKMARK.NSF to prevent any end user design change whatsoever.

Note It takes experienced R5 developers to make customizations to the design of the BOOKMARK.NTF template.

What information should be displayed on the Welcome page?

Before deploying the client, you need to think about the information that you want to display. The new design elements of Domino R5 offer almost endless possibilities in presenting any kind of information. Maybe you just want to show the mail database, calendar, to do list, and headlines, or maybe you want to display intranet Web pages and Java news tickers. You may also want to design different pages for different groups, such as departments, locations or levels.

What is the design update process of a static Welcome page?

If you decide to define your own Welcome page, you need to develop a way to update the design of the page to incorporate later changes. Usually, both BOOKMARK.NSF and its template BOOKMARK.NTF reside on the local clients. One way of updating may be accomplished through defining a server-based BOOKMARK.NTF template, from which all the client databases inherit their design changes.

Customized mail template considerations

Companies who have modified the mail template will find that the R5 template design elements have been rewritten and reorganized quite extensively. Your developers will need to take a close look at all of the modifications they have made to the Release 4.5 or 4.6 mail templates and determine if they are still required. Many of the modifications our customers made to their mail templates were no longer required because the R5 template now incorporates them.

We recommend that once you have a list of the required modifications, you use the R5 mail template as your basis and apply your local changes to this template. You will find it very hard to apply the R5 changes to your Release 4.5 template. This may be a significant amount of work, depending on the number of modifications you have made, and how well you have documented them.

The good news is that your developer will find the R5 mail template to be more readable and easier to follow. The number of global variables has been reduced significantly. Much of the code is reused throughout the template, and changes can now be made in one place instead of a number of places.

In the R5 mail template, action pull-down menus are consistent with the action bar buttons. This is now possible because the template uses the new action bar drop-down menus, eliminating end user confusion. Developers should keep this in mind if they make local customizations.

Note Converting a user's mail template from Release 4.5 or 4.6 to R5 will result in a very large number of design changes. Administrators should note that the conversion of mail files for large numbers of users will take some time. Users who upgrade their own template and replicate their mail to, or from, the server replica will also find that this can take a significant amount of time, depending on network or dial-up connection speeds.

Considerations before upgrading your mail template

Here are some recommendations that you should follow before you upgrade to the R5 mail template. You should not upgrade your mail template:

- Until your administrators have upgraded your 4.5 and/or 4.6 mail servers to 4.57 or 4.65 mail template levels in mixed-release environments. The administrators will need to push those templates and update all current users' designs. If this is not done, you will be *unable* to exchange repeating Calendar and Scheduling (C&S) meetings with other users.

- If you have granted anyone access to your mail or calendar. Users who are on older versions of Notes will receive a number of “Illegal circular use” error messages when accessing their mail or calendar. The older Notes clients cannot interpret the R5-specific design functions. We recommend that you upgrade your client community in groups that reflect the actual organizational groups.

Note Interoperability may be further enhanced in later maintenance releases.

- Unless your mail server has been upgraded to R5.

Once you have upgraded to the R5 client, and if you are still using a Release 4.5 or 4.6 template, the hotspots on the Welcome page and the bookmark bar icons for mail, calendar and to do's will not bring you to the appropriate views in your mail file. You will need to upgrade to the R5 mail template, where the appropriate design elements exist for this to work properly. If you select the mail, calendar or to do hotspot or icons, the behavior will be the same as double-clicking your mail database icon, meaning it will open the last view used. This needs to be kept in mind for education, also.

Workstation security

With Domino R4.5, the Execution Control List (ECL) was introduced. The ECL is discussed in detail in Chapter 11, “Security.” Whether you are using the ECL in your existing environment or not, we recommend you pay close attention to this security enhancement in Domino R5. The standard ECL in R5.02 enforces more security, restricting many of the default abilities. You may want to take a closer look at the topic of workstation security and consider using the ECL to enforce more security.

Lotus Components

If you are currently using the Lotus Components ActiveX controls with your R4 Notes clients, you need to upgrade to Lotus Components Release 1.3 when upgrading the clients to Notes R5. It is available in English only. Notes R4.62 clients are also supported with Lotus Components 1.3. The upgrade is a free upgrade for existing Lotus Components customers. This release includes the following features:

- Support for Notes/Domino Designer R5
- Year 2000 Readiness
- A Lotus Components Un-installer

Lotus Components 1.2 will work with the Notes R5 client, but this is not certified. The following issues are known in this type of scenario:

- The Lotus Components palette (menu bar) is not usable with Notes 5.0. You will need to embed Lotus Component objects via the Notes menu, by choosing Create – Object. This issue will be addressed in Lotus Components 1.3. You can still access the Template Builder from this palette; however, the other menu options will be unavailable in Notes R5.
- The File Viewer in Components 1.2 will not work with Notes 5.0. The File Viewer in Components 1.2 is based on the R4 viewing technology; Notes R5 uses a different technology for viewing files. Lotus Components 1.3 will also address this issue.

All instances of Version 1.2 Components need to be removed and recreated with the Version 1.3 Component for complete compatibility with R5.

For a free download of the Lotus Components 1.3, refer to the following Web address:

<http://esuite.lotus.com/components/components.nsf>

Using EasySync with Release 5 mail template

EasySync 2.1 and earlier versions do not support Notes R5 clients. Users of EasySync 2.1 and earlier versions will encounter synchronization errors when attempting to use EasySync with Notes R5. Users of EasySync for Notes 2.1 and higher can upgrade to Release 3.0a free of charge. A free upgrade may be obtained at

<http://www.lotus.com/register.nsf/1Home?OpenForm>

Note If you are not a Lotus Web member, simply click on the Registration link you will find at the site to register. Once you are registered, you will be able to download the free upgrade by clicking the Download EasySync for Notes Release 3.0a Free Upgrade link.

SmartSuite integration

There is a known performance issue with applications hanging in SmartSuite 96, SmartSuite 97 and SmartSuite Release 9 (Millennium Edition) when the Notes R5 client and SmartSuite are running simultaneously. The problem is more noticeable when many Notes documents are open, or when using a Notes Welcome page style other than “Basics.” There is a fix available for this issue. A utility is available on the SmartSuite CD in the directory \APPS\SMARTSUITE\SSN5.EXE or you can access it from <http://www.support.lotus.com/homeframe.nsf/pages/SmartWin>

Applying this update addresses the following performance issues:

1. If Notes 5 is running, SmartSuite applications run very slowly when you move the cursor over the SmartIcons bar, or when you click an icon.
2. If Notes 5 is running, 1-2-3 97 very quickly becomes basically unusable. The following activities run slowly:
 - Launching the application
 - Resizing the main window
 - Opening a dialog box

Note If you cannot replace the DLLs using the utility, try this workaround: In applications other than 1-2-3 97, you can just turn off the bubble help in the SmartSuite applications you use. This fix will not work with 1-2-3 97 because bubble help is required. You have to replace the MAIN123W.DLL file in 1-2-3 97 to resolve the problem.

To turn off bubble help:

1. Close Lotus Notes, if it is currently running.
2. Launch each SmartSuite application (other than 1-2-3 97), one at a time, and complete the following:
 - Choose File - User Preferences - SmartIcons Setup.
 - Deselect the Show icon descriptions (bubble help) check box.

Note Approach 9.5 (Millennium Edition) is required to read R5 database format (ODS 41).

Upgrade considerations for applications

Before you upgrade any production database, we recommend you test it very thoroughly in your test environment.

Upgrading applications involves two major steps:

1. Convert the database to the R5 format (ODS 41) and make use of the new properties.
2. Introduce new R5 design capabilities.

The first step can be done almost automatically by running a compact task on the specific application server after it has been upgraded to R5. The compact will upgrade any *.NSF file. Templates are not affected; they are not compacted and therefore not converted to ODS 41 (for R5).

When you look at the new R5 templates, such as the Domino Directory (pubnames.ntf), you will notice that they are still in ODS 20 (R4). The new ODS grants you better performance, new database options, and it can seamlessly coexist in mixed environments. Refer to Chapter 5, “Planning for your Domino R5 upgrade,” for details on the new R5 ODS.

The new ODS is also used on an R5 server when the user is doing the following:

- Creating a new copy
- Creating a new replica
- Creating a database from a template

Databases that were converted by mistake or that encounter problems with the new ODS can be converted back to the R4.x ODS (20). Use the server console command `load compact <databasename> -r`, or create a new replica or copy with the extension *.NS4.

Note Renaming an application at the operating system level does not automatically revert the ODS.

When opening the upgraded databases for the first time, users may experience an initial delay. Views need to be rebuilt, because the view version was also updated. To do this on the server side and prevent a client delay, use `load update -r`.

It is very important to keep in mind that apart from these two steps, ODS upgrade and design upgrade, the involved user group also needs to be upgraded to an R5 client. Otherwise, clients may encounter problems like unreadable data trying to access the R5 design features.

The table below illustrates the different ODS results in certain scenarios:

<i>Scenario</i>	<i>Resulting ODS on the target database</i>
R4 client creates DB locally.	R4 ODS
Next, through GUI, makes a copy or replica on R5 server.	R5 ODS
R4 client creates DB on R4 server.	R4 ODS
Next, through GUI, makes a copy or replica with extension .NSF on R5 server.	R5 ODS
R4 client creates DB on R5 server.	R5 ODS
Next, through GUI, makes a copy or replica on R4 server.	R4 ODS
R5 client creates DB locally.	R5 ODS

continued

<i>Scenario</i>	<i>Resulting ODS on the target database</i>
Next, through GUI, makes a copy or replica on R4 server.	R4 ODS
R5 client makes a copy or replica with extension .NS4 on R5 server.	R4 ODS (Compact on the R5 server will keep the R4 ODS.)
R4 client creates DB on R5 server specifying the extension .NS4.	R4 ODS (Compact on the R5 server will keep the R4 ODS.)
At OS level, user renames a file giving it an .NS4 extension.	If the database was R5, it will stay R5. If the database was R4, the next compact will convert it to R5. If the database is compacted with compact -r it will be R4, but only until the next time compact runs without the -r option.
User receives an R5 database as an attachment in an e-mail and detaches it to an R4 client or server.	R5 ODS Neither the R4 client nor the R4 server will be able to use the R5 database and they won't be able to revert it to R4 format. The message "Invalid NSF version" will display)

Coexistence issues

In many sites, not all of the servers can be upgraded in a short period of time. This could raise coexistence issues, where R4 and R5 servers run in the same infrastructure, thus sharing the same directory, the same system databases and database replicas.

In general, R5 was designed to work in a mixed environment. As mentioned previously, the Domino Directory works on both R4.5.x/R4.6.x and R5 servers. Replication between the two different ODS levels (20 for R4 databases and 41 for R5 databases) works seamlessly. Although an R4 server or client cannot access an R5 database format directly, without an R5 server serving it, the ODS itself does not replicate.

Your rollout plan should define the length of the coexistence period. The presence of R4 servers in your environment determines the utilization of R5 enhanced functionality, such as mail tracking. In other words, the faster all the R4 servers are upgraded, the faster you are able to leverage the full scope of R5.

You may want to pay special attention to Domino servers with releases prior to 4.x. They are not supported to run with the new Domino Directory. We recommend upgrading those servers to your recent R4.x version, and integrating them afterwards into your R5 rollout plan.

System databases

System databases are all very different in the way that they are enhanced in R5, as well as the way that the new functionality can be applied to your infrastructure. For example, the Domino Directory is automatically upgraded, and the template has the same replica ID. For other system databases, a manual design replacement may be needed, or the Design task might handle the upgrade. Those different scenarios and behaviors result from the different purposes and compatibility issues of the databases.

A comprehensive table listing the system databases of R4.6 and R5.02 and their different transitioning approaches can be found in Chapter 12, “System databases.”

In this section, we want to point out the major aspects affecting many environments with regard to the system databases.

Statistics & Events

Statistics & Events involves two databases: EVENTS4.NSF, where the configuration of monitors takes place; and the report database STATREP.NSF, where all the information is logged.

If you have statistic and event monitoring set up in your environment, you will need to redesign this architecture due to changes to the databases and the involved server tasks. In most cases, the original setup will need some additional configuration to work properly after upgrading the servers from R4 to R5. This needs to be considered beforehand and should be included in both the tests and the pilot.

For a coexistence period, monitoring can be run on an R4 server with the R5 database design. However, we recommend that you encapsulate the design on the R4 servers, which means limiting the replication of the design and templates of the involved databases between R4 and R5.

In Chapter 22, “Monitoring,” you can find more details on aspects relating to coexistence, as well as the enhanced R5 functions and a step-by-step upgrade example.

Database catalog

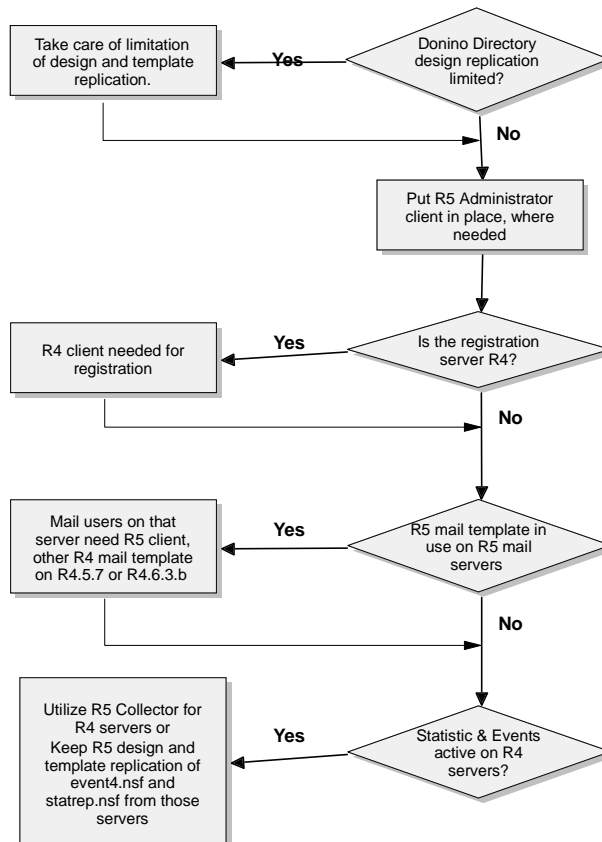
Due to numerous improvements and enhancements to the search capabilities of R5, the database catalog went through some major changes. This includes a different design, a new setup and different server task behavior.

In our test environment, we experienced some problems with upgrading the catalog, in particular, when trying to create a replica copy of an R4 catalog on a new R5 server. The database was simply removed, and a new database was created by the Catalog task. If you are currently using the catalog, you should include this scenario in your tests. If you are not using the catalog, we think you may want to consider it now, because of functions such as ACL information and file system indexing.

Refer to Chapter 12, “System databases,” for more details.

Coexistence checklist

The following figure gives you a brief summary of the key points to consider in a mixed environment:



New server licensing

The Domino server is actually a server family consisting of three different server types. The servers differ in their functionality as well as their price. For your upgrade, you might want to consider using different server licenses for the different server types; mainly mail, application and enterprise. However, keep in mind that you need to upgrade the license and reinstall the Domino server code if you want to make use of enhanced features from the next level.

Domino Mail Server

The Domino Mail Server combines full support for the latest Internet mail standards with Domino's industry-leading messaging capabilities, all in one manageable and reliable infrastructure. Domino Mail Server incorporates all of the following features:

- **Internet messaging**
Domino Mail Servers deliver native Internet addressing, SMTP routing and MIME content support, as well as support for S/MIME, SSL, POP3, IMAP4, LDAP, HTTP, HTML, SNMP, and more.
- **Built-in upgrade tools**
With the built-in upgrade tools in the Domino Mail Server, you can automatically upgrade users from Lotus cc:Mail and Lotus Organizer, MS Mail, MS Exchange, and other systems, without disrupting service or losing valuable data.
- **Choice of client**
Your users can access mail with a Notes client, or single-purpose clients such as Eudora, Microsoft Outlook Express, and Netscape Mail — even a PDA or a smart phone.
- **Robust messaging management**
With Domino R5, keep an eye on your service levels with built-in monitoring tools that help you to proactively manage your servers.
- **Security model**
The integrated X.509 support provided by Domino R5 lets you register new users with Notes and/or X.509 certificates for access to secure applications such as S/MIME.
- **Enterprise-scale LDAP directory**
Integrates with other directories via full support of LDAP V3. Synchronizes user accounts with Windows NT directory.

Domino Application Server

The Domino Application Server is an open, secure platform optimized to deliver collaborative Web applications that integrate your enterprise systems with rapidly changing business processes. It includes all of the following features:

- **Integration with enterprise systems**
The Domino R5 application server delivers a visual environment for programmatically or non-programmatically accessing enterprise systems for real-time connectivity. Domino Enterprise Connection Services provide a rapid development tool for mapping information in relational databases, transaction systems and ERP applications into your Domino-based intranet/Internet applications. With DECS and Domino R5, you can easily extend your investments in existing systems.
- **Support for leading Web standards**
Domino R5 supports leading Web standards, such as HTML4, Java, CORBA/IIOP, and ECMA-compliant JavaScript, so that you can use your favorite HTML authoring tools, Java IDEs and scripting tools to create Domino applications.
- **Support for MS IIS**
For NT customers, Domino's support for MS IIS brings the rich application services of Domino, such as replication, roles-based access, workflow, etc. to IIS Web environments. For details on the new Web features, refer to Chapter 10, "Web administration."

Domino Enterprise Server

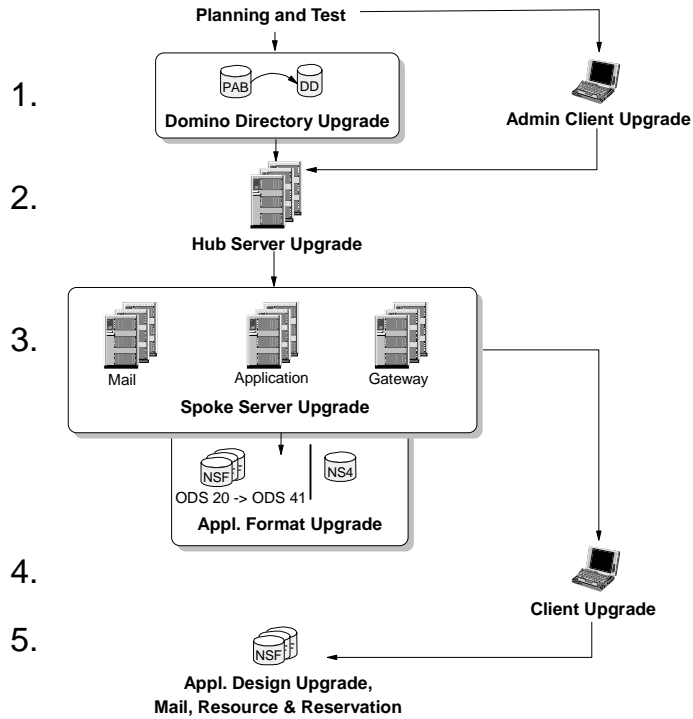
The Domino Enterprise Server delivers all the functionality of the Domino Mail and Application Servers, reinforced with clustering for the high availability and reliability required by mission-critical applications. Among the features it provides are the following:

- **Clustering for failover and load balancing**
Domino R5 Enterprise Servers provide application clustering so that you can ensure 24x7 service levels for messaging and applications. Cluster up to six servers and any combination of Domino-supported platforms, even cluster R4 and R5 servers together for seamless upgrade. Domino clustering also provides for dynamic load balancing to automatically maximize your deployment performance and scalability.

- **Server consolidation**
Domino Enterprise Server supports unlimited partitions to help you leverage your investment in highly scalable platforms like UNIX, AS/400, and S/390 so that you can consolidate servers for simplified management and lower cost of ownership.
- **Web clustering**
The new Domino R5 Internet Cluster Manager (ICM) extends failover and load balancing to Web browsers, ensuring reliability for your mission-critical Web applications.
- **Compatibility with MSCS**
If you are an NT customer, you can use Domino clustering with the Microsoft Cluster Server (MSCS) for failover of both Domino applications and operating system services on Windows NT. The Domino Enterprise Server can coexist with MSCS, but MSCS is not required for Domino to provide application failover and load balancing for NT.
- **Billing services**
With the tracking and reporting capabilities of Domino, it is easy to analyze system usage for billing, chargeback and capacity planning purposes.

Summary

This chapter discussed aspects relating to the upgrade sequence of your R4 environment to R5. The following figure illustrates the recommended rollout sequence:



Part 3

Backstage: Behind the scenes of the Domino R5 server

Part 3 of this redbook, “Backstage: Behind the scenes of the R5 Domino server,” offers an inside look at the many services a Domino server can provide. This part focuses on the technical components of the Domino R5 server upgrade, as well as the features available to the administrator to configure once the Domino server is at the R5 level.

We give you a checklist for the Domino R4 to R5 upgrade, and document a basic upgrade procedure.

We then take you through the new abilities of the directory services offered by the Domino Directory, the Directory Catalog and Directory Assistance.

Following that, we present the Domino R5 messaging services and improved router functionality, SMTP configurations, and International MIME support before turning to Domino as a Web server.

We provide an overview of the security infrastructure of Domino, which adopts security standards such as S/MIME and SSL, and describe improvements to the system databases, such as administration requests and resources. We also show you how to configure new features, such as domain search.

Finally, we cover aspects relating to the architecture and implementation of transaction logging.

Chapter 7

Domino R5 server upgrade

After completing your project planning, you are ready to upgrade your Domino R4.x servers.

This chapter describes how to upgrade a Domino R4.x server to Domino R5. We include an upgrade checklist that you can use to remind you of items to complete during the upgrade process.

This redbook documents the upgrade of a Domino server on a Microsoft NT platform. Each operating system will have its own special tasks when upgrading a Domino server, and the install screens may look different from the ones shown here. For more information on the R4.x to R5 upgrade for each platform, refer to the Redbooks and other references listed at the end of this chapter.

The following topics are covered in this chapter:

- The upgrade checklist
- Pre-upgrade tasks
- The upgrade installation process
- Post-upgrade tasks
- Upgrading the mail files
- Upgrading the SMTP MTA
- Upgrading the system databases
- Testing the server
- Other references
- Summary

Upgrade checklist

Here is an upgrade checklist that you may want to use during the upgrade process:

- ☒ Uninstall Domino as an NT Service
- ☒ Purge all administration requests
- ☒ Remove R4.x NOTES.INI settings
- ☒ Ensure all mail has been routed
- ☒ Delete busy time.nsf
- ☒ Make a backup of any files
- ☒ Replicate NAB changes if this is not the first server to be upgraded
- ☒ Disable connection documents on the server
- ☒ Stop the Domino server
- ☒ Install the Domino R5 server code
- ☒ Replace standard templates with any customized templates
- ☒ Start the Domino R5 server
- ☒ Upgrade the Public Name and Address if required during startup
- ☒ Stop the Domino server
- ☒ Update the NOTES.INI settings
- ☒ Start the Domino server
- ☒ Create a Configuration document for the server
- ☒ Create a Domino Directory profile if required
- ☒ Stop the Domino server
- ☒ Convert the ODS of system and mail or application databases
- ☒ Upgrade adminp to the new version and process administration requests
- ☒ Test the server

Pre-upgrade tasks

The following section covers pre-upgrade tasks.

Uninstall Domino as a service

If you are running Domino R4.x as a service on an NT server, you need to uninstall the service before upgrading your Domino server to R5. The R5 installation contains an option to run the server as a service in Microsoft NT. If you do not uninstall the Domino service before starting the upgrade, you will have two Domino server services running on the NT server.

To uninstall Domino as a service, go to a DOS prompt and type:

```
> ntsvinst -d
```

Purge administration requests

Before starting your Domino R4.x upgrade, ensure that the current system is clear of any administration requests by purging the admin4.nsf database.

To purge admin4.nsf administration requests, go to the Domino console and type:

```
tell adminp process all
```

NOTES.INI

Domino R5 is able to scale better than Domino R4.x, allowing it to support more users concurrently. Therefore, the following parameters should not be set in the NOTES.INI file. These parameters will be automatically configured by the Domino R5 server. They will not be present in the NOTES.INI, but if left they will be supported.

- NSF_BUFFER_POOL_SIZE
- SERVER_SESSION_TIMEOUT
- SERVER_MAXSESSIONS
- SERVER_MAXUSERS
- NSF_DBCACHE_MAXENTRIES
- SERVER_NAME_LOOKUP_NOUPDATE
- MAILCLUSTERFAILOVER

Also, remove any DEBUG settings within NOTES.INI.

Purging pending mail

To ensure that all mail has been routed, open the MAIL.BOX file and check the views.

Deleting BUSYTIME.NSF

In Domino R5, BUSYTIME.NSF has been upgraded, and its design will be automatically upgraded by the Domino R5 server when first started.

Alternatively, you can delete BUSYTIME.NSF and allow the Domino R5 server to create a new busy time database when the R5 server starts from the R5 BUSYTIME.NTF template.

Backing up your files

Ensure that you have a full backup of your server by using your backup mechanism.

You may also want to manually back up any files you consider necessary, such as NOTES.INI or NAMES.NSF.

Replicating Name and Address Book changes

This is not required if this is the first server to be upgraded in your domain.

If this is a subsequent server upgrade, and you have not replicated the updated R5 design of the Domino Directory (or R4 Name and Address Book) to all your servers, replicate the new Domino Directory design to the server that is being upgraded.

Disabling Connection documents and Program documents

To prevent replication of R5 templates or upgraded database designs to other servers within your domain, you can temporarily disable Connection documents during the upgrade, and then change replication settings before enabling.

Disable any Program documents that are no longer necessary, as well as any program documents that enable compactions, if you want to manually control the ODS conversion of system, application and mail databases.

The upgrade installation process

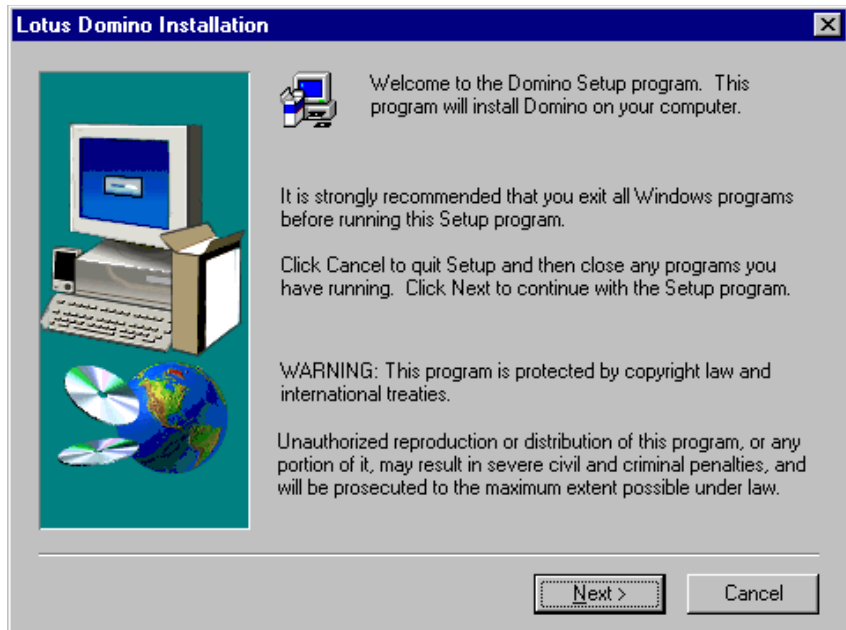
We used Domino R5.02 for the upgrade described in this section. At the time of installation, this was the latest available code level for the Microsoft NT operating system.

When preparing your upgrade, if there is a later code level or point release available to you, it is recommended that you implement that release. Each subsequent release of Domino includes additional features and enhancements which will allow you to take advantage of better scalability and performance. Check the README.NSF file of each release to get a complete listing of the enhancements included.

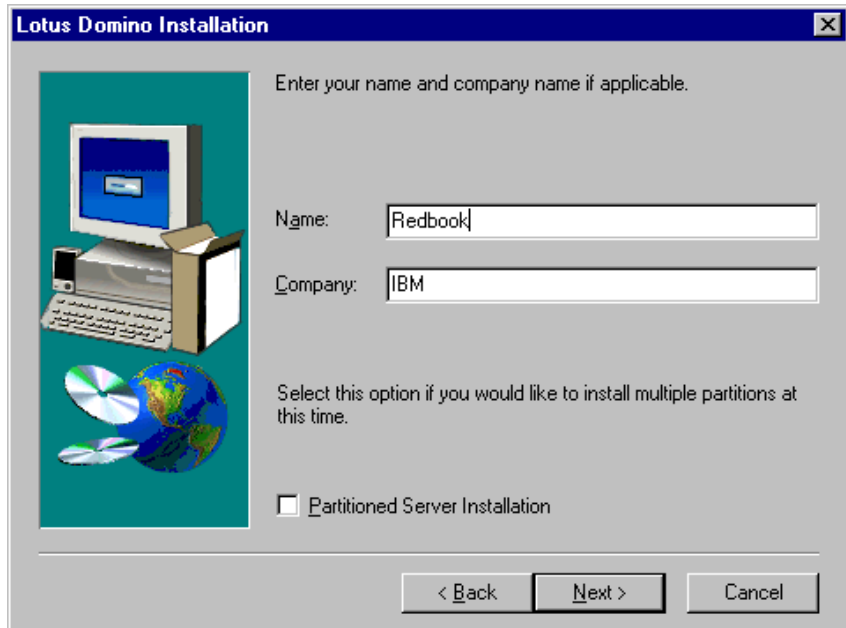
Installing a standalone Domino server

Follow these steps to upgrade a standalone Domino R4.x server to R5:

1. Before starting the upgrade, ensure that the server and any clients that may be present on the server are shut down.
2. Start the install process.



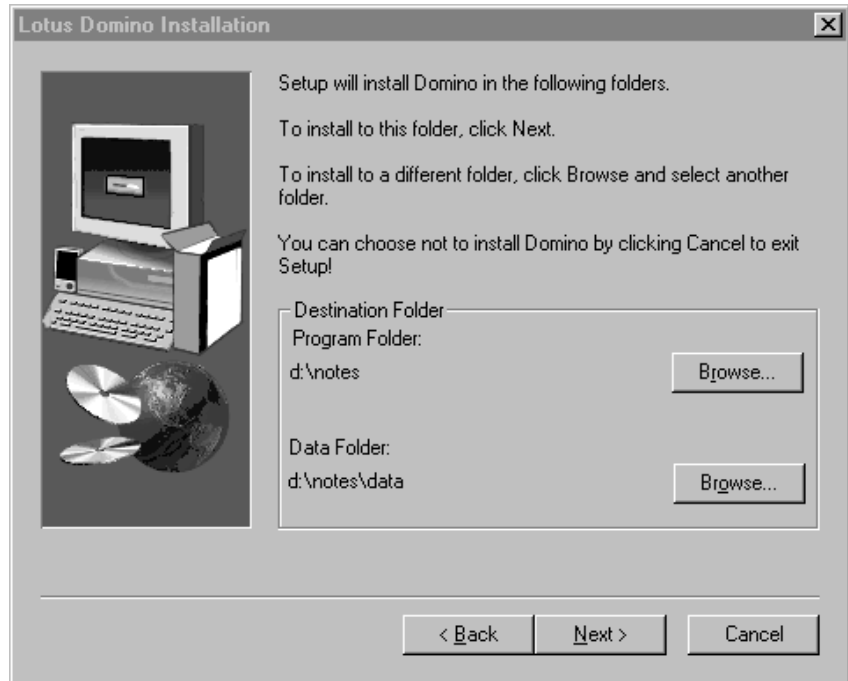
3. Click Next.



4. Specify your name and company.

There is a check box available that lets you choose to install a partitioned server. When you select this option, you will need to specify two data directories for the upgrade, rather than one. Later in this section, we will describe how to install a partitioned server.

5. Click Next.

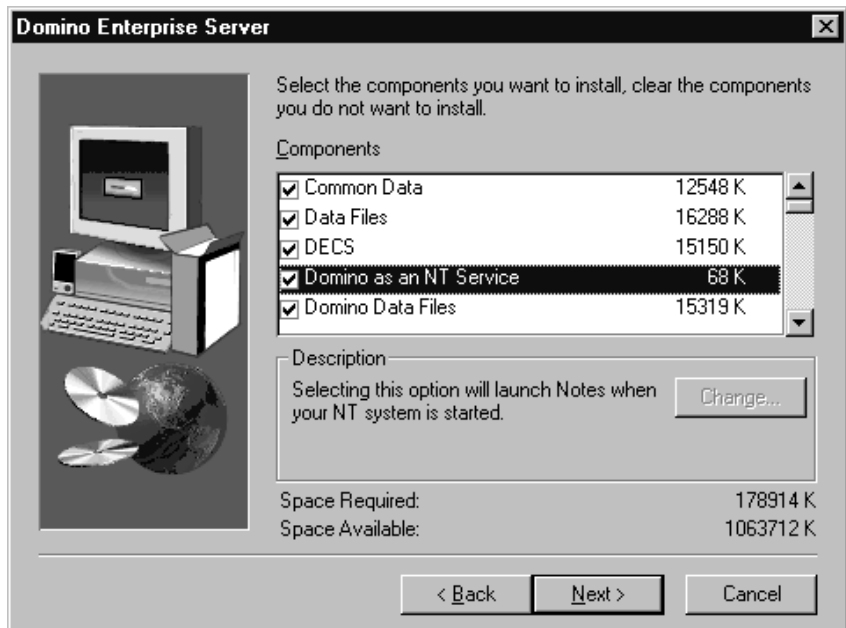


6. In Domino R5, the folders that contain the Domino server code are different than the ones containing the Notes client code.

The Domino R5, if installed as a new server, will have a default installation of \lotus\domino. The Lotus R5 client will be installed to \lotus\notes.

However, if you are upgrading the server from R4.x to R5, the code will be installed in your existing directory, which is most likely \notes.

7. Click Next.

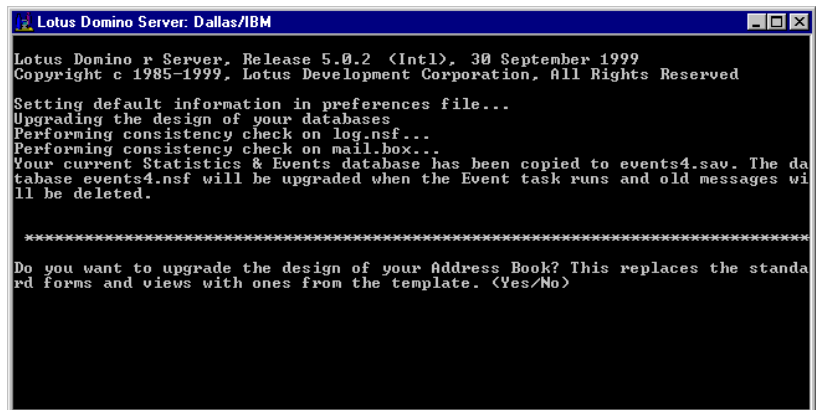


8. To run Domino as an NT service, you must open Options and select "Domino as an NT Service."
9. Click Next.
10. Before restarting the server, if you have any customized templates for logs, mail or NAB, add the templates. Make a backup of any templates that you are going to overwrite. This allows you to easily restore them to the server if necessary.



11. Click Finish to restart the server.
12. If this is the first server in your domain to be upgraded to Domino R5, choose Yes when prompted to upgrade the Public Name and Address Book to the R5 design.

For additional servers, you should already have replicated the new Domino Directory to them, so you would then choose No. For details on how to distribute the upgraded design of the Domino Directory to R4 servers within your domain, refer to Chapter 6, “Rollout considerations for upgrading to R5.”



The initial startup will remove the Report server task from your NOTES.INI file and add server tasks to NOTES.INI that may have been removed previously, such as mail object collect and design.

13. When you have confirmed that your Domino R5 server has started, quit the server and open the NOTES.INI.

Tip During the installation, if the NOTES.INI file of your Domino server was in an operating system directory, such as \WINNT on NT, NOTES.INI would have been renamed to NOTES.000 and moved to the \notes\data directory of the server.

14. Review the NOTES.INI parameters for any additions and remove any server tasks that are not required. If you usually run the Design task, it is recommended that you temporarily remove this from your server, as you may not want to upgrade your application databases.

Tip Refer to Chapter 12, "System databases," for a complete list of which templates are replicas, which templates retain the same template name, and which databases will have their design automatically upgraded by the Domino R4.x to R5 upgrade.

15. Save the NOTES.INI file and restart the Domino R5 server.

Installing a partitioned server

Unlike a standalone Domino server install, you must specify the NSF buffer pool settings for partitioned servers. On partitioned servers, the algorithm for the size of the NSF buffer pool is determined based on the amount of physical memory only, not the number of partitions that might be started. This is because that number is unknown to the server when it starts.

The algorithm used to adjust the size of the NSF buffer pool hard-coded within R5 works as follows:

- 1/8 of physical memory up to 32MB
- 1/4 of physical memory from 32MB to 128MB
- 3/8 of physical memory from 128MB to total amount

If you set the NSF buffer pool manually for each partition using the `NSF_BUFFER_POOL_SIZE=<memory size in bytes>` parameter in the NOTES.INI, the following items must be taken into consideration:

- The number of partitions
- The amount of physical RAM on the server
- How the statistics for the NSF Buffer Pool look for each partition

The rule to follow is to take roughly 30% to 35% of the amount of physical RAM, and divide that value by the number of partitions on the machine. This would only be a starting point and would need to be adjusted if necessary, depending on how each partition uses Domino.

To see statistics on the NSF buffer pool, run the `Show statistics server` console command for `Database.BufferPool.Maximum.Megabytes=`. The peak will hit the maximum value very quickly on almost any reasonably busy server.

Tip The setting `NSF_BUFFER_POOL_SIZE_MB` is the same as `NSF_BUFFER_POOL_SIZE`, but in Megabytes. If this is set, it will override any `NSF_BUFFER_POOL_SIZE` set.

All allocated memory is used. The maximum size of the NSF buffer pool is just a limit on the amount of memory that might be allocated. It is important to distinguish between this limit and the amount of memory actually allocated. Domino will normally reach the limit.

The way to determine if a buffer pool is too small relative to the buffer pools of other partitioned servers on the same machine is to compare the buffer pool hit rates. If the hit rates differ significantly, for example, 96% versus 99%, then the server with the lower hit rate needs a larger buffer pool.

Caution Be very careful if you are adjusting the `NSF_Buffer_Pool_Size=` parameter in the `NOTES.INI`. If the specified value is too low or too high, it could lead to problems on the server.

For more information on the Domino server upgrade from R4 to R5, refer to *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA. Other references are listed at the end of this chapter.

Post-upgrade tasks

The following section covers post-upgrade tasks.

Creating a Configuration document

Create a Configuration document for the server:

1. From your Administration client, select the server upgrade to Domino R5 and click the Configuration tab.
2. Under Server - Configurations, click the Add Configuration button to create a Configuration document. Configuration documents can be set for the domain as a default, for groups of servers, and for individual servers. If a default Configuration document is set as well as one individually for the server, the individual Server document will take precedence.

CONFIGURATION SETTINGS	
Basics	LDAP Router/SMTP MIME NOTES.INI Settings Administration
Basics	
Use these settings as the default settings for all servers:	<input checked="" type="checkbox"/> Yes
Group or Server name:	* - Default -
Type-ahead:	Enabled
International MIME Settings for this document:	<input type="checkbox"/> Enabled
Optimize LDAP queries: NOTE: This will build 4 views in the Directory	No
When set to 'Yes', this will allow the following: 1. Faster LDAP queries 2. Alternate language support 3. Allows exporting of objects other than people and groups	
IMAP server returns exact size of message:	Disabled
PDP3 server returns exact size of message:	Disabled
Comments:	

3. Use the NOTES.INI settings tab to specify all NOTES.INI parameters requiring manual rather than default settings.
4. On the Configuration document for the upgraded Domino R5 server, set the number of mail.box databases required for the server, SMTP settings for the server, message size restrictions, and mail threads on the server.

NOTES.INI

Perform the following tasks related to NOTES.INI:

- Remove the following from the **servertasks=** line in the NOTES.INI, if present:
 - Design
 - Object Collect mailobj.nsf
- Add the following to the **servertasks=** line in the NOTES.INI if "Events and statistics" was running on the server:
 - Collect
- Set the index rebuild directory on the server.
- Set the NOTES.INI variable VIEW_REBUILD_DIR to a directory with a large amount of space. For example, VIEW_REBUILD_DIR=e:\ViewTemp.

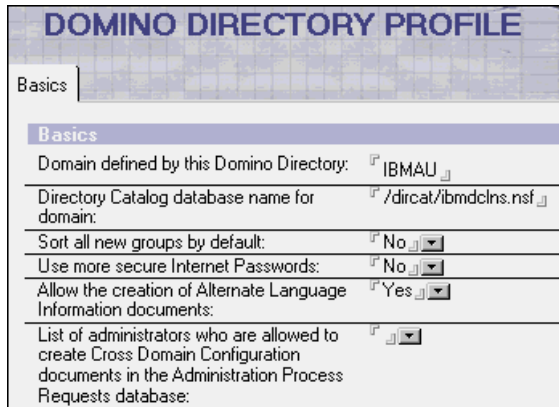
Note If the directory specified does not have enough space to hold the temporary files for an optimized view rebuild, a slower method will be used to rebuild view.

Creating a Domino Directory profile

If you have a directory catalog created from your test or pilot stages, and would like to use it on the server, replicate it to the server and create a default Domino Directory profile for the domain.

The Domino Directory profile lists the default location of the directory catalog on the servers within the domain. This can be individually overridden by the Domino Directory field on the Server document itself.

To create a Domino Directory profile, open the Administration client and choose Configuration - Messaging - Connections. On the menu bar under Actions, select Create Directory Profile.



The screenshot shows the 'DOMINO DIRECTORY PROFILE' dialog box with the 'Basics' tab selected. The dialog contains the following fields and options:

Basics	
Domain defined by this Domino Directory:	<input type="text" value="IBMAU"/>
Directory Catalog database name for domain:	<input type="text" value="/dircat/ibmdclns.nsf"/>
Sort all new groups by default:	<input type="text" value="No"/>
Use more secure Internet Passwords:	<input type="text" value="No"/>
Allow the creation of Alternate Language Information documents:	<input type="text" value="Yes"/>
List of administrators who are allowed to create Cross Domain Configuration documents in the Administration Process Requests database:	<input type="text" value=""/>

If you are installing a directory catalog to your servers, remember to remove any consolidated Name and Address books from the server. The directory catalog can exist alongside other consolidated Name and Address Books if required.

If you are maintaining any consolidated Name and Address books on a server, it is recommended that you install a Directory Assistance database, or upgrade your existing Master Address Book to Directory Assistance. For more information on this procedure, see Chapter 8, "Directory services."

If you are removing consolidated Name and Address books from your server, remove their names from the Names= line in the NOTES.INI.

Upgrading the ODS

Every major release of Notes/Domino (that is, R2, R3, R4, R5) has included significant architectural changes to the database structure, also known as the On-Disk Structure (ODS). These architectural changes enable us to improve performance and scalability in each release.

It is most likely that you will upgrade the ODS levels of system databases, as well as application or mail databases on your server. Because upgrades of the ODS can take a number of hours, we recommend that they be scheduled after hours, so that users are not affected.

Disabling the port

You can convert the ODS of the databases while the server is running or while it is down. Once the server is upgraded to Domino R5, you can disable the PORT so that users are not able to connect to the server.

To do this, go to the Domino console and type:

```
> quit port <portname>
```

Users trying to access the Domino server will receive the error `Unable to find server`.

Upgrading the ODS

To upgrade the ODS of the databases on the server, the following sequence is recommended:

1. Run Fixup on databases to ensure that they are error free.
2. Run Compact on databases to convert ODS. You can also use the Compact server task to enable some of the database properties available in Domino R5.
3. Run Updall on the databases after converting. This will reindex the views after the conversion and upgrade of the system databases to new designs to give users the best possible response time when using the new Domino R5 server.

Command examples

Below are examples of the commands with switches that we used when upgrading Domino R4.x to R5.

```
> Fixup -f -v
```

The `-f` switch causes Fixup to check all documents in the database, rather than just documents modified since the last time Fixup ran.

The `-v` switch prevents Fixup from running on views. This option reduces the time it takes Fixup to run. Use if view corruption isn't a problem.

```
Compact -d -i -u -F -h
```

The `-d` switch discards built view indexes.

The `-i` switch enables compacting to continue even if it encounters errors.

The -u switch disables the “Don’t maintain unread marks” property on databases. Use this generally across mail and application files. For system databases, you may want to use the -U switch (uppercase), which enables this property, since unread marks are usually not required on these databases. This will help improve performance.

The -F switch enables the “Document table bit map optimization” property on databases.

The -h switch disables the “Don’t support specialized response hierarchy” database property.

For an outline of available database properties and their effects, see Chapter 2, “Ease of Design.”

Tip For a complete listing of all compact switches available, see Appendix A.

Updall

The updall task will update all changed views and full-text indexes for all databases.

In our experience, on an AIX mail server of approximately 750 people averaging 80MB per mail file, the Fixup, Compact and Updall ran for approximately 8 to 10 hours for system databases alone. Running an Updall -r on the same server by itself across the mail server has taken up to 20 hours.

The above commands will upgrade all databases on the server.

With the fixup, compact and updall commands, you can specify the names of files or directories for the commands to run against, rather than the entire server.

To separate the conversion of system files and mail files or application files on a server, you can create a file with the names of the system databases to convert initially, and then convert the mail or application files on a server at a later time using the directory command. These can also be called through Program documents. This would allow you to upgrade servers during week days, upgrade system databases to the R5 ODS, and then upgrade the bulk of the files on weekends.

At a minimum, you must upgrade the Domino Directory to the R5 ODS immediately when you upgrade the server.

To allow compactions for databases to still occur while maintaining the ODS at R4 level, change any program documents or maintenance programs to run a Compact -r.

For a complete listing of all the parameters available to the compact program in Domino R5, refer to Appendix A, “Compact switches for Domino R5.”

Upgrading the mail files

When you upgrade users' mail files to the Release 5 template, you can do so one file at a time, or use the mail conversion utility to automate the upgrade. Upgrade mail files at a time when users won't be accessing them, for example, early mornings or over a weekend. Notify users that their mail files will be unavailable while they are being upgraded.

Using the mail conversion utility

To convert a mail database to the new R5 design, perform the following steps:

1. Shut down the router at the server console:

```
> tell router quit
```

This prevents Domino from routing mail to the mail files while they are being upgraded. Mail is stored in the MAIL.BOX while you upgrade the mail files. Once you have upgraded the mail files and reloaded the router task, the router processes and delivers the mail in MAIL.BOX.

2. Load the mail conversion utility:

```
> load convert (arguments)
```

The syntax of this command is as follows::

```
> load convert [ -r | -l | -f | -m] mailfilepath  
existingtemplatename newtemplatefilename
```

The following table explains the available arguments:

-r	Converts mail files in subdirectories of the specified directory
-l	Creates a text list of the mail files
-f	Uses a test list of mail databases to determine which mail files to upgrade
-m	Converts the file or files for IMAP use
<i>mailfilepath</i>	Specifies which mail file or files to upgrade
<i>existingtemplatename</i>	Specifies a certain mail file design (for example, only mail files using R4.6 designs) to upgrade
<i>newtemplatefilename</i>	Specifies the template with which to upgrade to mail files.

3. Once you have finished upgrading mail files to the R5 template on this server, load the router:

```
> load router
```

4. It is recommended, after any design update of an application, that you update the views and indexes of the database to ensure the quickest response time for the client. If views and indexes are not updated, the opening of the database by the client will prompt an update.

At the server console type:

```
> load update
```

5. Notify users that the upgrade of their mail files to the R5 design is completed.

Using the Design server task

Alternatively, the Design server task can be used to upgrade mail files.

At the server console type:

```
> load design
```

The Design server task cannot upgrade mail files only; all databases on the server will be upgraded to R5 design if they have a corresponding template on the server.

For more information on the Domino server upgrade from R4 to R5, refer to *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

Upgrading the SMTP MTA

For an SMTP MTA server upgrade, complete the following steps in addition to the standard installation.

Shutting down the server

There are several tasks you need to perform.

Shut down the Router

Clear all mail in the mail.box. Shut down the router task.

At the server prompt type:

```
> tell router quit
```

Shut down the SMTP Inbound Transport

At the server prompt type:

```
> tell smtpmta stop inbound transport
```

Wait for the SMTP.box and Outbound Work queue (SMTPOBWQ.NSF) to process all messages.

Wait for the SMTP Inbound Work Queue (SMTPIBWQ.nsf) to process all messages.

Shut down the SMTP Domino Server

At the server prompt type:

```
> quit
```

NOTES.INI

If the following entries exist in the NOTES.INI file, remove them:

- SMTP MTA (in servertasks = line)
- Report (in servertasks= line)
- NSF_Buffer_pool_Size
- NSF_DBCache_Maxentries
- Server_Name_Lookup_Noupdate
- Any debugging parameters, for example:
Smtpmta_trace_level=0x000000A0

SMTP configuration

Select the Configurations Settings - Router/SMTP - Basics tab in the Domino Administrator, and enable the server to send mail outside the Local Internet Domain over SMTP.

Enable the SMTP Listener Task for all the servers to receive mail via SMTP.

For information on setting up SMTP and other messaging configurations available in Domino R5, see Chapter 9, "Messaging."

Upgrading the system databases

For a complete listing of system databases used for Domino administration, and whether they are automatically upgraded by the Domino server upgrade, see Chapter 6, “Rollout considerations for upgrading to R5.”

The following chapters in this redbook describe upgrade considerations for specific system databases:

- For information on the Domino directory, directory assistance and directory catalog, see Chapter 8, “Directory services.”
- For information on administration requests, calendar resources, and domain search, see Chapter 12, “System databases.”
- For information on events and statistics, see Chapter 22, “Monitoring.”
- For more information on messaging configurations, see Chapter 9, “Messaging.”
- For more information on Web services, see Chapter 10, “Web administration.”

Testing the server

When you have completed your Domino R4.x to R5 server upgrade, you should test the server to ensure that all components are functional.

Your testing can be as exhaustive or as light as you would like. Below is a checklist of some items to verify when testing your server:

- R4.x client can connect to the server
- R5 client can connect to the server
- Open system databases on the server
- Open mail databases on the server
- Send e-mail within the Domino domain
- Send e-mail to another Domino domain
- Send e-mail to the Internet
- Receive mail from within the Domino domain

- Receive mail from another Domino domain
- Receive mail from the Internet
- Stop and start the server
- Mail lookup is working

Other references

Several IBM Redbooks provide detailed information about Domino R5 upgrades on specific platforms:

- NT
Netfinity and Domino R5.0 Integration Guide, SG24-5313
- AS/400
Lotus Domino for AS/400 - Installation, Customization, Administration, SG24-5181
- S/390
Deploying Domino in a S/390 Environment, SG24-2182
- RS/6000
Lotus Domino R5 on IBM RS/6000, SG24-5138

Additional information about other platforms is on the Web at:

- www.dominoedge.com
Installing and setting up Domino on R5 Linux by M.E. Smith
- <http://www.notes.net/linux>
- www.lotus.com/performance
Sun white paper “Implementing Lotus Domino on Sun”

Other sources of information that may be of interest are listed at the end of this book.

Summary

In this chapter, we discussed the steps required to upgrade a Domino R4.x server to Domino R5.

We provided a checklist that you can use during the upgrade process. We then documented pre-upgrade tasks before showing you the installation process for upgrading a Domino R4.x server to R5. We covered the installation of both a standalone Domino server as well as a partitioned server.

After that, we focused on post-upgrade tasks, such as creating a Domino Directory profile and upgrading the On-Disk Structure. We provided information on how to convert mail files, and how you would upgrade an existing SMTP MTA.

Finally, we stressed the importance of testing the upgraded server to make sure that all components are functional.

Chapter 8

Directory services

This chapter covers the different functions that Domino R5 offers for directory services. It includes a discussion of the following topics:

- Domino Directory
- Directory Assistance
- Directory catalog
- Directory topology
- Summary

The directory services of Domino R5 introduce the Domino Directory, which replaces the Public Address Book; Directory Assistance, replacing the Master Address Book; and the all new directory catalog, a lightweight address book. The following table shows the transitioning of R4 address books to directories in R5:

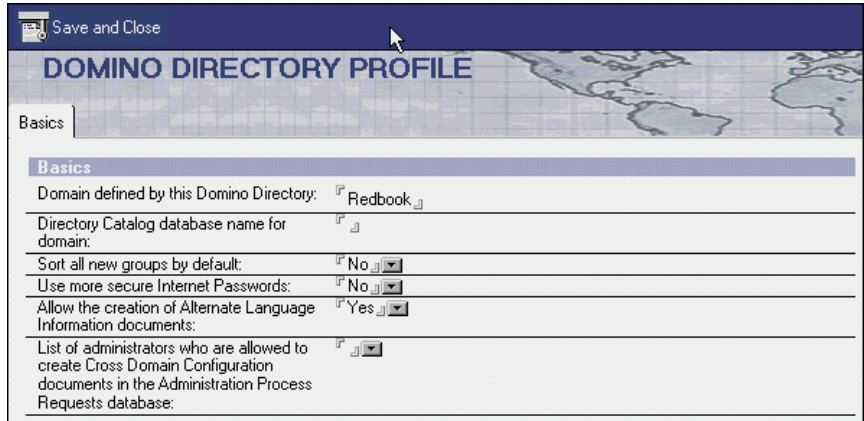
<i>R5 Domino server</i>	<i>R4 Domino server</i>
Domino Directory	Public Address Book
Directory Assistance	Master Address Book
Directory catalog	—
Notes R5 client	R4 Notes client
Personal Address Book	Personal Address Book
Mobile directory catalog	—

Domino Directory

In this section, we describe the features of the Domino Directory that you should be aware of when upgrading your environment. For rollout considerations related to the Domino Directory, refer to Chapter 6, “Rollout considerations for upgrading to R5.”

Domino Directory profile

When you install a new Domino R5 server and open the Domino Directory for the first time, you will come across a new profile document called the Domino Directory profile. If you upgrade an existing server, you might not even notice that it's there. To open it, go to the People view on the People & Groups tab in the Administrator client, or simply open the Domino Directory on the server. Choose Actions - Edit Domino Profile from the menu bar.



The screenshot shows the 'DOMINO DIRECTORY PROFILE' form with the 'Basics' tab selected. The form has a dark blue header bar with a 'Save and Close' button. Below the header, the 'Basics' tab is highlighted. The form contains several fields with dropdown menus and checkboxes:

Basics	
Domain defined by this Domino Directory:	<input type="checkbox"/> Redbook
Directory Catalog database name for domain:	<input type="checkbox"/>
Sort all new groups by default:	<input type="checkbox"/> No
Use more secure Internet Passwords:	<input type="checkbox"/> No
Allow the creation of Alternate Language Information documents:	<input type="checkbox"/> Yes
List of administrators who are allowed to create Cross Domain Configuration documents in the Administration Process	<input type="checkbox"/>
Requests database:	

The Domino Directory profile is used to specify miscellaneous settings for the Domino Directory. For details, refer to the “Domino Administration Help” database. Briefly, the parameters in the profile are as follows:

- Domino domain
- Name of the directory catalog
- Sorting of groups
- Security of Internet password
- Allowing alternate language information documents
- Listing of persons allowed to create cross-domain configurations

Tip We recommend changing the default value of “Sort all new groups by default” to Yes. That way, all the groups’ documents will be sorted alphabetically when they are saved.

Server document

The Server document in R5 makes heavy use of tabbed tables, which implies the need for an R5 client to make changes to that document. The following server services are configured through the Server document:

- SMTP native or the SMTP MTA (many settings in Configuration document)
- Administration process
- Agent manager
- Domain indexer
- Directory catalog
- Internet Cluster Manager (ICM)
- Web retriever
- Web server (Domino Web Engine, HTTP, IIOP, LDAP, NNTP)
- Transaction logging
- Installed MTAs such as cc:Mail or X.400

Below is an example of a Server document:

Connection documents

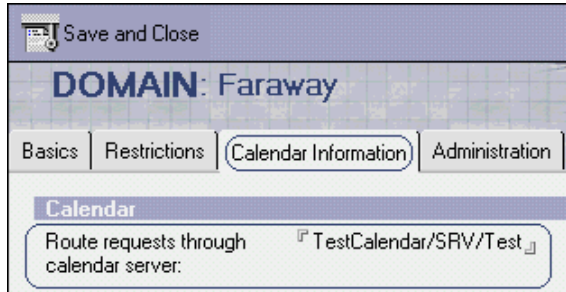
Connection documents now allow you to specify a group name for the destination servers. This will allow users to reduce Connection documents and to make the replication topology more transparent.

Use the upgrade to R5 for a cleanup and consolidation of your connection topology.

Tip You might also want to consider using the cluster name as a destination server, although this was already possible in R4.

Domain documents

Domain documents in an R5 Domino Directory allow you to specify a calendar server for non-adjacent domains. Any free-time searches for persons in the non-adjacent domain are forwarded to the server specified in the “Route requests through calendar server” field. The server should be located in an adjacent domain.



Holidays

Holidays are documents within the Domino Directory that allow your company to centrally manage information on scheduled holidays or events. Domino provides a listing of the major holidays for approximately 20 countries and religions. Clients can import holidays to their calendar.

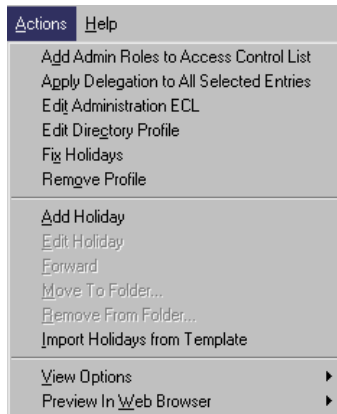
For more information on importing holidays to your Notes client, see Chapter 16, “Calendar and scheduling.”

Importing holidays

Holidays can be set by the administrator to either import as free time or busy time on clients’ calendars.

Holidays are shown in the Domino Directory under the Server - Holidays view.

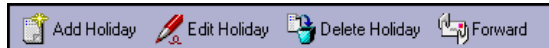
If Holidays are not present when you upgrade the Domino Directory to R5 design, choose Actions - Import Holidays from Template from the Domino administration client to import the standard holidays to the Domino Directory. This requires that you have the Domino Directory template on your server.



Adding more holidays

You can add additional holidays to the Domino Directory for your clients to import, such as specific country or religious holidays, or a company-wide or regional holiday like a company picnic. An administrator can also set up sub-categories under Country headings for State or Province holidays.

To add additional holidays to the Domino Directory, choose Actions - Add Holiday from the Server Administration menu, or click the Add Holiday action button that appears at the top of the Holiday view.



Basics		Holiday Information	
Group:	Australia	Repeat:	Yearly
Title:	Christmas Day	Start Date:	25/12/99
		Continuing:	For
		Repeat For:	10 Years
		If the date falls on a weekend:	Don't Move
		Mark time as:	Free

A client can only import a group of holidays, such as the country or company-specific groups setup; they cannot import individual holidays from within the groups. If a user imports holidays from two or more countries, there may be holidays for the same dates that occur in both sets. In this case, the user would see two holidays listed on the same date in their calendar.

If a client imports the same country's holidays twice, they will not receive two events in their calendars.

For more information on creating holidays in your Domino Directory, see the product documentation *Administering the Domino system, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino system, Volume 2*, Lotus part number CT6T8NA.

Maps

Maps is a Domino R5 server task that creates profile documents in the Domino Directory which, when viewed with the Domino R5 administration client, create a graphical representation of the mail connection and replication connection documents of your Domino directories.

The Maps server task should be run on only one server per Domino domain. In a multi-server environment, with various levels of Domino code, running Maps on one of your Domino R5 servers will produce maps for your entire Domino system.

The server task will populate the Domino Directory, creating a profile document called \$Topology, which contains fields for each connection document called Topology_DataX, where X is a number. This document will replicate to all servers in your Domino domain, enabling you to view Maps on any Domino server through the administration client, no matter where they were created in the domain.

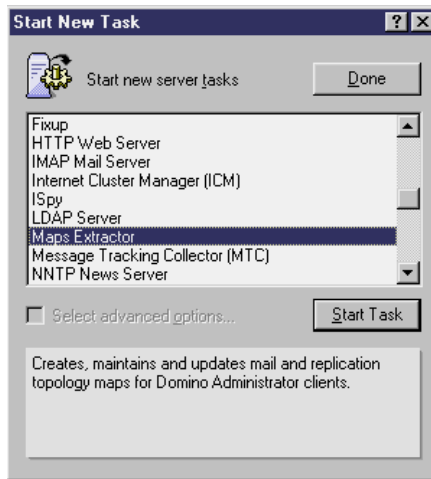
The Map is displayed graphically by conversion of a Java applet to the Administration client. To view the Maps in the Domino Directory through the Administration client, the Notes client must have "Enable Java Applets" selected in their User Preferences.

The Maps server task does not need to run continually on your servers. The frequency of running Maps should be in relation to how often you edit your replication and mail connection documents.

To enable Maps on your Domino server, you can use three methods:

1. Through the Domino Administrator

Open the Domino Administrator to the Server - Status tab, and choose Task - Start on the right-hand side of the screen to open the task box shown below. Highlight the Maps Extractor task, and click the Start Task button to start the Maps server task.



Alternatively, you could use the command `load maps` at the Domino console.

2. Through the NOTES.INI file

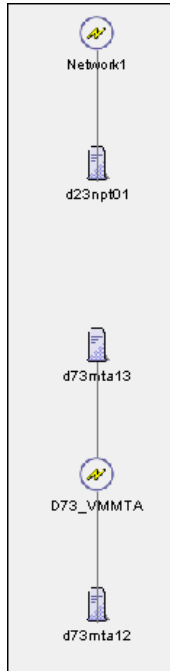
As the Maps server task does not need to run constantly, it can be included in the NOTES.INI file by adding the line `ServerTaskAtX=MAPS` where X equals a number.

3. Through a Program document

If your Domino domain does not have frequent changes, you can set up a Program document to run the Maps server task weekly rather than nightly.

Domino's replication and mail connections are shown graphically when the Maps server task is run in the replication and message tabs. There are two replication maps, one by connections and one by clusters. There are also two message maps available, one by connection and one by Notes Named Networks (NNN).

The following map shows two small NNNs within a domain.



On topology maps for mail and replication, lines are shown from the server you are on to other servers in its domain and other domains. A solid line means the connection between the two servers is there by default, such as in a Notes Named Network for mail routing. There are no default connections for replication.

A dotted line means that the connection between the two servers is produced via a Connection document. By double-clicking on the dotted line within the map, you can open and edit that Connection document.

Directory Assistance

Directory Assistance was refined for R5. Its terminology is now more consistent. The name of the database template used for Directory Assistance has also changed to Directory Assistance (DA50.NTF). In Notes and Domino R4.x, it is called Master Address Book (MAB45.NTF). Those two templates, although named differently, have the same replica ID.

The Directory Assistance database can be configured to allow Domino to use other Domino Directories (or PABs) from other domains or remote LDAP servers. Domino can use this for name addressing in mail routing, as well as type-ahead and Web authentication.

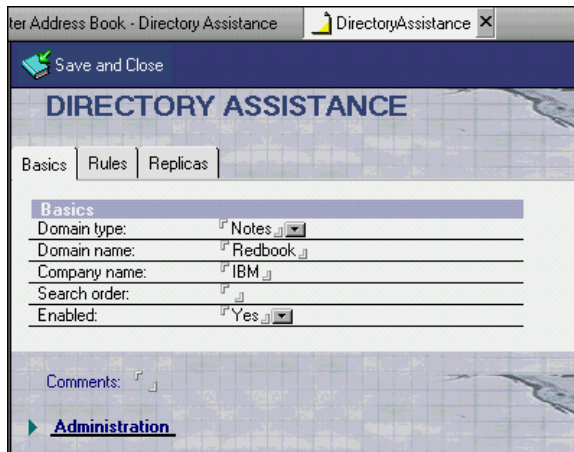
R5 enhancements

Directory Assistance in R5 is enhanced by the following functions:

- External LDAP servers for lookup
- Trusted foreign directories for authentication (for Web clients only)
- Support for directory catalog
- Database links can be copied and pasted (use only on R5 servers)

Note In addition, the replica ID can be used instead of database links.

The Directory Assistance document looks like this:



The screenshot shows a web browser window titled "ter Address Book - Directory Assistance" with a "DirectoryAssistance" tab. The page has a blue header bar with a "Save and Close" button. Below the header, the title "DIRECTORY ASSISTANCE" is displayed. There are three tabs: "Basics", "Rules", and "Replicas". The "Basics" tab is selected, showing a form with the following fields: "Domain type:" (a dropdown menu with "Notes" selected), "Domain name:" (a text field with "Redbook"), "Company name:" (a text field with "IBM"), "Search order:" (a dropdown menu with "1" selected), and "Enabled:" (a dropdown menu with "Yes" selected). Below the form is a "Comments:" field. At the bottom, there is a link labeled "Administration" with a right-pointing triangle icon.

Note Domino R5 does not support the use of groups from secondary directories or address books for Web authentication. This behavior is unchanged from Domino R4.x

Although using cascading (NOTES.INI parameter **NAMES=**) for Domino directories is still supported for backward compatibility, it is recommended that you convert to Directory Assistance. Web authentication through the HTTP task will not work on a cascaded address book.

Managing directories: Pros and cons of each method

The following table summarizes the advantages of each approach to managing Public Address books in a multiple-domain environment:

<i>Advantages</i>	<i>Separate Public Address books</i>	<i>Directory assistance</i>	<i>Cascading Public Address books (PAB replicated across domains)</i>	<i>Cascading Public Address books (PAB accessed over the network)</i>
Users can use addressing feature to select names from secondary Public Address books	NO	YES	YES	YES
Users can use type-ahead mail addressing to search for names in secondary Public Address books	NO	YES	YES	NO
Name of a recipient from a secondary Public Address Book resolved before memos are sent	NO	YES	YES	YES
Low disk space usage	YES	YES	NO	YES
Failover to another replica of a secondary Public Address Book	NA	YES	NO	NO
No permanently open server sessions	YES	YES	YES	NO
Public Address books replicated primarily or exclusively within their domains only	YES	YES	NO	YES
Uses rules for more efficient searching of secondary Public Address books	NA	YES	NO	NO
Supports an unlimited number of Public Address books	NO	YES	NO	NO

Upgrading to Directory Assistance

Upgrading from the Master Address Book to Directory Assistance can be done by applying the design of the Directory Assistance template (da50.ntf). During our example upgrade of the server from R4.6.3b to R5.0.2, this was done automatically. The Configuration documents remain in the database after the upgrade.

For an example of configuring Directory Assistance to authenticate Web users through an LDAP directory, refer to Chapter 11, “Security.”

Directory catalog

Directory catalog is a new feature in Domino R5.x that consolidates and compresses multiple users, groups, resources, and mail-in databases from multiple Domino Directories in one or more domains into a single database. This single database is significantly smaller than all the other domain address books combined.

For example, several domains together that would amount to 3GB of disk space would amount to approximately 50MB in a directory catalog. On average, the directory catalog takes between 80–100% less space than a Domino Directory does.

The directory catalog acts as a lightweight, quick-access database. It achieves its performance and size by summarizing entries from the Domino Directory documents into a single field. It can store up to 255 entries in one field of one document (unless you reduce the packing density setting, or the 64K byte limit is reached). A standard record in the directory catalog uses about 100 bytes.

Benefits

The benefits of the directory catalog include the following:

- A directory catalog can provide an enterprise-wide view of the entire organization.
- Use as a mobile directory catalog on a client for type-ahead name lookups and local LDAP searches.
- The mobile directory catalog allows users to quickly address mail to anyone in the organization without being connected to the network.
- Reduces network traffic significantly because the search is done locally on the workstation, as opposed to on the server.

- With users who are connected to the network, the search is done on the directory catalog, as opposed to the multiple domains that exist on the server, which also reduces network traffic and open database sessions.
- Servers can also use a directory catalog for faster name lookup and client authentication for users in secondary Domino Directories.
- Directory catalog enables the use of just-in-time encryption of mail. Refer to Chapter 19, “Using new R5 features.”

Note Other LDAP directories cannot be included in the directory catalog; they have to be mapped through Directory Assistance. If you want to use an LDAP directory for Web authentication, for example, this has to be done by setting up a Directory Assistance database with a document pointing to the LDAP directory.

The directory catalog is supported by the server task Dircat, which builds the document in the directory catalog database.

Coexistence

The directory catalog does not work with the Notes R4.x client; this is an R5.x client feature and is not implemented in 4.x. If the Domino R5 Directory Server utilizes the directory catalog for combining several directories, then the Notes R4.x client has no way (other than type-ahead) to pick the address book for a certain domain to send a memo to a specific person. In a mixed Notes R4.x/R5.x client environment, using the directory catalog with Directory Assistance is recommended. The directory catalog relies on the R5 ODS, so it cannot run on an R4 server.

Directory server

A Directory server is dedicated to serving directories and building the directory catalog (running the Dircat task). Depending on the size of your environment (number of users and domains), we recommend that you consider providing separate hardware for that role. If your environment is fairly small and running in a single domain, you might want to use an administration or hub server.

The Dircat task needs to run on a dedicated server containing all the directories. Do not run the Dircat task on several servers; replication conflicts may occur. The “Restrict Aggregation to this Server” field in the Directory Catalog Configuration document ensures that the specified server Dircat task is the only one that runs on this directory catalog. Setting this field prevents duplicate entries in the directory catalog caused by the task running on multiple servers against replicas of the same Domino Directories.

You can build several directory catalogs on the Directory server, for example, to differentiate between the mobile and server catalog with different field definitions included. Through the Directory Profile, your servers can only refer to one directory catalog. However, this setting can be overwritten by the directory catalog field in the Server documents.

The screenshot shows the 'SERVER: Sydney/IBM' configuration window. The 'Basics' tab is active. The 'Directory Catalog database name on this server' field is highlighted with a red box. Below the fields, a yellow box contains the text: 'Enter the database name of the Directory Catalog for this domain on this server. This field can be used to override the database name listed in the Directory Profile.'

Tip Different sorting might be needed by the users in your environment. Build a catalog for distinguished and last name sorting, and let the users choose their favorite.

Building the initial directory catalog may take some time. The Domino Administration Help states: "Initially building a source directory catalog takes approximately one hour for every 75,000 entries on a server that is comparable to a Pentium 200MHz system. Subsequent updates will take less time."

Tip Try to build a source directory catalog on one server in your organization and then replicate it to servers in other Domino domains, rather than building a source directory catalog in each domain.

Mobile directory catalog

The mobile directory catalog is a replica of the directory catalog from the server cascaded on the local workstation. If the replica is pulled manually, it also has to be cascaded locally by choosing File - Preferences - User Preferences. Under Mail and News, enter the additional local address book. This will ensure that type-ahead and other addressing functions work.

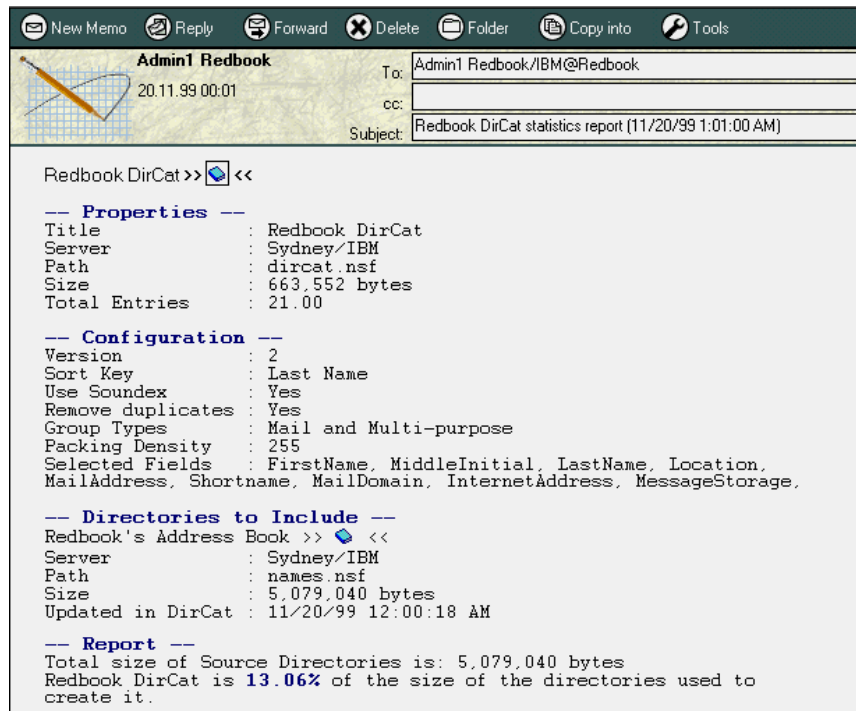
Note When the mobile directory catalog is manually cascaded using the User Preferences, it will immediately appear via the Address button. However, the client must be restarted in order for type-ahead to recognize the catalog.

The User Setup Profile can be used to automatically create and enable the mobile directory catalog. For a closer look at the Setup Profile, see Chapter 21, "User administration."

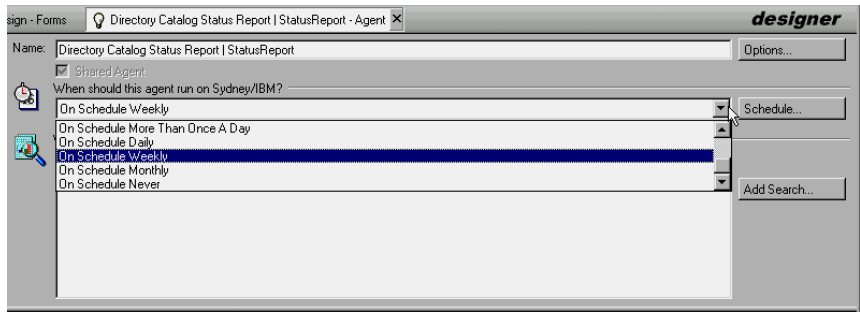
Refer to Chapter 19, "Using new R5 features," for more information on the client side of the directory catalog.

Reports

The directory catalog can be configured to send reports to a user or group. The reports include information about the size and configuration of the directory catalog, as well as links to the directories.



The reports are generated by an agent in DIRCAT.NSF. The agent is scheduled on a weekly basis. If you need more frequent reports, modify the agent settings.



Note The LotusScript code in the Directory Catalog Status Report agent is written so that only the first entry in the ReportRecipients field is sent the report. The easiest workaround is to place a single group name in the ReportRecipients field and populate this group with the desired members. Another solution is to change the last line of LotusScript code in the Initialize event of the agent from the following:

```
Call memo.Send( False,
cfgdoc.GetItemValue( "ReportRecipients" )(0))
```

to the following:

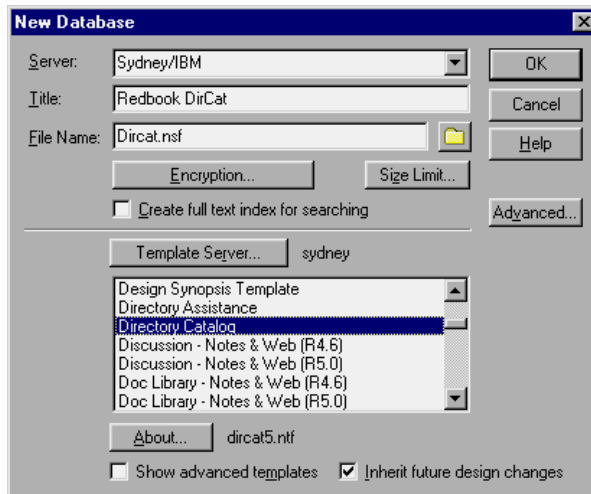
```
Call memo.Send( False, cfgdoc.ReportRecipients)
```

Configuration

We want to give you a short look at the configuration of the directory catalog. For detailed information, refer to the online help “Domino 5 Administration Help.”

To configure the directory catalog, perform the following steps:

1. Decide on your Directory server, and replicate all the directories to that server.
2. Create a new database based on the Directory Catalog template.



3. Customize the Configuration document:

- Name the directories to be included.
- Adjust the “Additional fields to include,” if desired.

Note All the necessary fields for addressing are included by default. However, any changes you make to the settings will require a new initial build of the directory catalog.

- Select a Sort by option.
- Specify an administrator or group for “Send Directory Catalog reports to.”

Note Do not specify more than one single name. Use a group instead, because only the first entry in that field is evaluated. Stay with the default setting on the Advanced tab.

Save and Close

DIRECTORY CATALOG CONFIGURATION

Basics | Advanced

Basics

Directories to include:

Additional fields to include:
 (Fullname and ListName included by default)

Sort by: ☐ Distinguished Name
☒ Last Name
☐ Alternate Fullname

Use Soundex:

Remove duplicate users:

Group types:

Restrict aggregation to this server:

Send Directory Catalog reports to:

Comments:

4. Build the initial directory catalog by running the Dircat task manually with the command `load dircat`.
5. Configure the Server document of your Directory server to run the Dircat task on a daily basis, during off peak hours.

Save and Close Web...

SERVER: Sydney/IBM

Basics | Security | Ports | Server Tasks | Internet Protocols | MTAs | Miscellaneous

Administration Process | Agent Manager | Domain Indexer | Directory Cataloger

Basics

Directory Catalog filenames:

Schedule

Schedule:

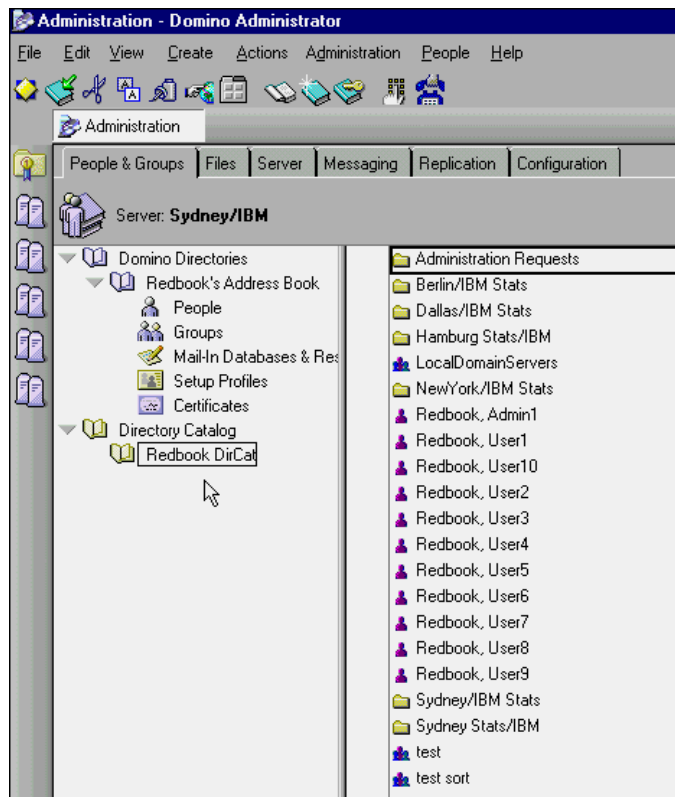
Run Directory Catalog aggregator at:

Repeat interval of:

Days of week:

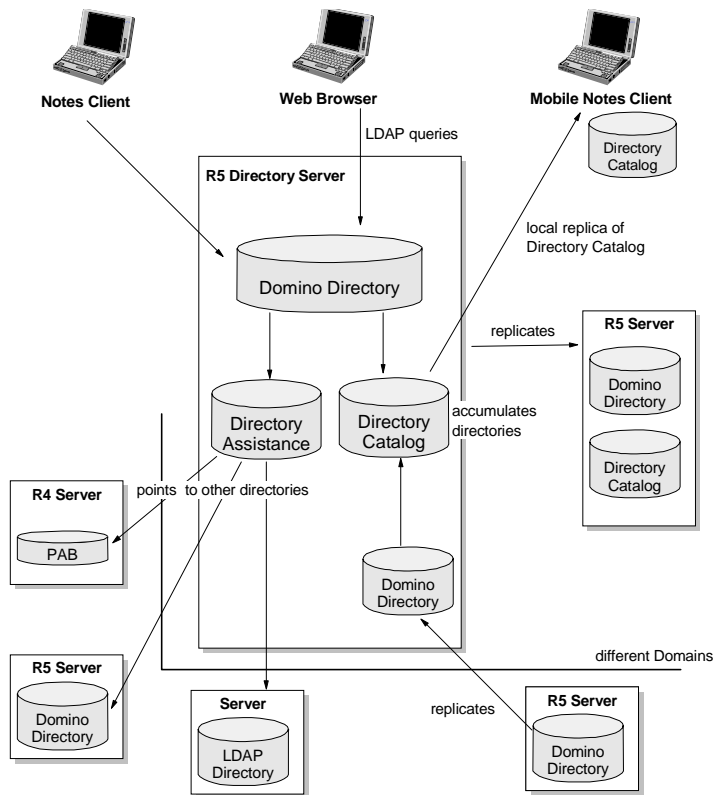
6. Populate your directory catalog in your server infrastructure. Create a replica on every server.
7. *Server Dircat*: Include the directory catalog in the Directory profile of the Domino Directory.
8. *Mobile Dircat*: Include a database link to the directory catalog in the desired Setup Profile for use of mobile directory catalog.

Once the initial directory catalog is built and configured for your server, you will be able to access it through your Administrator client on the People & Groups tab.

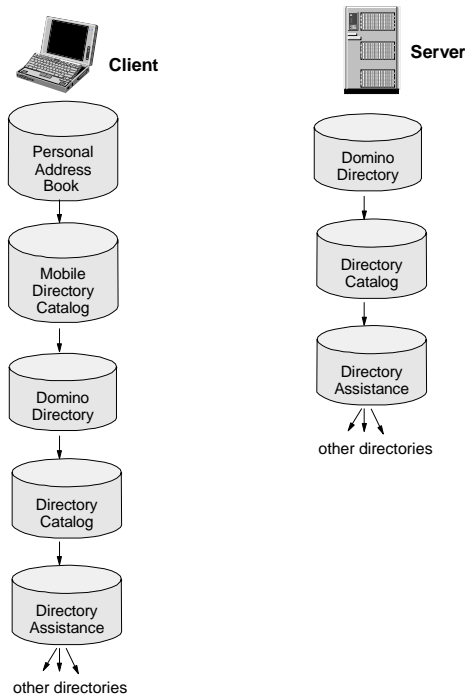


Directory topology

Now that we have gone through all the directories and configurations, let's look at a possible topology utilizing all the R5 functions.



The order in which a name search from a Notes client or Domino server is resolved is displayed in the following figure:



Summary

With Domino R5, you will get a greatly enhanced directory service, which offers solutions for large enterprises with integration of LDAP and Directory Assistance, and also focuses on performance with the slim Directory Catalog.

This chapter described aspects relating to the Domino Directory, Directory Assistance, and Directory Catalog.

Chapter 9

Messaging

When upgrading your Domino R4.x system to Domino R5, there are many new features that you can take advantage. For example, Domino R5 messaging now has the capability of routing mail through SMTP (Simple Mail Transfer Protocol) as well as NRPC (Notes Remote Procedure Calls), and can now read MIME (Multipurpose Internet Mail Extensions) natively. This gives you many options and possible configurations for both the client and server when designing your Notes messaging environment.

This chapter describes how to configure and manage your R5 system to take advantage of these new features. The following topics are covered:

- R5 routing types
- Multiple mailboxes
- Review of 4.6x SMTP MTA architecture
- R5 SMTP architecture
- Internet routing in multilingual environments
- S/MIME
- Configurations
- Troubleshooting
- Summary

R5 routing types

In Domino R5, the Domino routing types have been increased to allow the administrator more control over the configuration of their Domino networks.

Router types

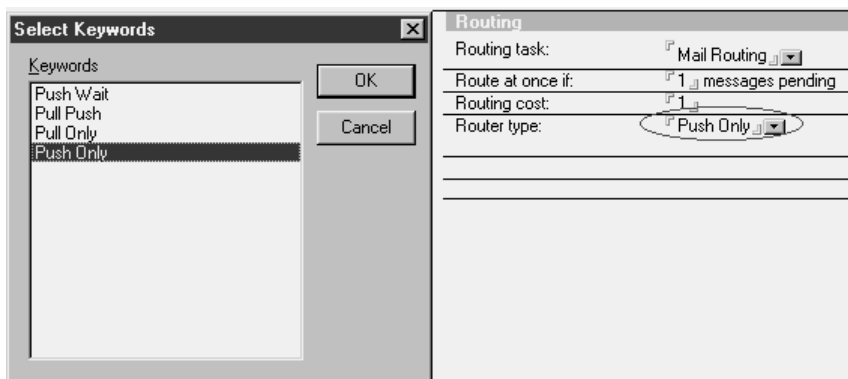
The transfer queue logic and routing algorithm logic have been modified to support new routing types. The router loads the routing tables at startup. At this point, the router reads the Connection documents within the Domino Directory as set up by the administrator. It checks each Connection document, looking for the Pull Push, Pull Only, and Push Wait connection

types. Once the tables are loaded, the router creates destination transfer queues for any Pull Only or Pull Push routing destinations. All other destination transfer queues are created when the router dispatches a message.

The following table provides a description of the router types.

<i>Routing Types</i>	<i>Description</i>
Push Only	Source server connects to destination server and pushes mail. Same functionality as R4.x.
Pull Only	Source server connects to destination server, requests destination server to push mail.
Pull Push	Source server connects to designation server, pushes mail, and then requests destination server to push mail.
Push Wait	Source server waits for destination server to connect, and then pushes mail.

The administrator configures the router type using the Connection documents, which contain a new field called Router type. Access this portion of a Connection document by selecting Messaging - Connections under the Configuration tab in the administration client.



Pull Push and Pull Only

The Pull Push and Pull Only router types are valid for both Notes mail routing and SMTP mail routing. When either of these types is selected, you are prompted to specify which protocol to use, either SMTP or Notes RPC.

Pull Push routing might be considered opportunistic routing. Opportunistic mail routing means that the router seeks out a connection to the target router. In R4, opportunistic mail routing only occurs over WAN-type protocols, where the connection is XPC or X.25. With R5, opportunistic mail routing can occur over any protocol.

Additional requests when issuing the Pull request are shown in the following dialog box. Add or remove checkmarks as appropriate to define the desired router request.

Routing	
Routing task:	<input type="checkbox"/> Mail Routing
Route at once if:	<input type="checkbox"/> 1 messages pending
Routing cost:	<input type="checkbox"/> 1
Router type:	<input type="checkbox"/> Pull Push
Pull routing request protocol:	<input type="checkbox"/> Notes RPC
Request the following when issuing a pull request:	<input checked="" type="checkbox"/> d23hubm1/23/H/IBM(both Notes and Host) <input checked="" type="checkbox"/> All local primary Internet domains listed in Global Domain(s) <input type="checkbox"/> All alternate Internet domain aliases listed in Global Domain(s) <input type="checkbox"/> The following servers/domains/hosts:
Pull router timeout:	<input type="checkbox"/> 30 seconds

The options are as follows:

- Internet name of Notes and the Host, such as redbook1.lotus.com
- All local primary Internet domains listed in the Global Domain(s)
- All alternate Internet domain aliases listed in the Global Domain(s)
- The following servers/domains/hosts, which are listed for your server

You can also specify a Pull Router timeout period.

Pull requests to destination servers are only issued according to the schedule in the Connection document. This is true for both protocols (Notes RPC and Notes SMTP), but the specific mechanism used to issue the requests differs between the two protocols. The differences are described in the following sections.

Notes RPC

When the schedule says OK to Pull, the router creates a transfer thread that will open mail.box on the destination server. A new server transaction (Pull Mail) is issued that will inform the destination server of the Pull request. Upon receipt of the Pull request, the destination server will issue a Link Notification to the router. The router will then process the Link Notification and Push mail back to the source server.

Notes SMTP

When the Connection documents schedule says OK to pull, the router creates a transfer thread that will open a connection to the destination server. An ESMTP (Extended Simple Mail Transfer Protocol) command called ETRN is issued that will inform the destination server of the Pull request. Upon receipt of the ETRN command (Pull request) the destination

server will issue a server console Route command to the router with the name of the source server. The router will process the Route command and Push mail back to the source server. When configuring a Notes SMTP Pull connection, the destination server must be a fully-qualified Internet host name, and not the Notes hierarchical name.

For more technical details on Domino R5 mail routing, see the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Multiple mailboxes

Under Domino R4.x, during heavy load, several server threads may try to deposit mail into mail.box, along with the router attempting to read and update mail. Any process trying to write to mail.box, including the server threads and the router, needs exclusive access to mail.box. In addition, when the router reads new messages from mail.box, other processes trying to write to the database have to wait. This can lead to long wait times if there is a large amount of new mail, for example, on a busy system with heavy mail traffic such as a mail hub.

Mail routing using multiple mailboxes

Domino R5 is improved by being able to route mail using multiple mail.box databases. With multiple mail.box databases, Domino can use multiple concurrent processes, since one process can write to each mail.box database. When the router is reading one mail.box, it marks the database “in use” so that other server threads trying to deposit mail move to the next mail.box. This will improve the Domino server performance.

Though you will see performance gains no matter how many mail.box databases you configure to your server, you will achieve the largest performance improvements by adding an additional one or two mail.box databases to your server. In our experience in a Domino AIX environment, we use two mail.box databases for a standard mail server, and three to four mail.box databases for a mail hub server.

Configuring multiple mailboxes

To set multiple mail.box databases for a server, open the Server Configuration document that applies to that server, click the Router/SMTP-Basics tab, and enter the number of mail.box databases you want in the “Number of mailboxes” field.

The screenshot shows the 'CONFIGURATION SETTINGS' window with the 'Router/SMTP Basics' tab selected. The 'Number of mailboxes' field is set to 2 and is circled. Other settings include SMTP used when sending messages outside of the local internet domain: Disabled, SMTP allowed within the local internet domain: Disabled, Servers within the local Notes domain are reachable via SMTP over TCP/IP: Only if in same Notes Named Network, Address lookup: Fullname then Local Part, Exhaustive lookup: Disabled, Relay host for messages leaving the local internet domain: (empty), Local Internet domain smart host: (empty), Smart host is used for all local internet domain recipients: Disabled, and Host name lookup: Dynamic then local.

Router/SMTP Basics	
Number of mailboxes:	2
SMTP used when sending messages outside of the local internet domain:	Disabled
SMTP allowed within the local internet domain:	Disabled
Servers within the local Notes domain are reachable via SMTP over TCP/IP:	Only if in same Notes Named Network
Address lookup:	Fullname then Local Part
Exhaustive lookup:	Disabled
Relay host for messages leaving the local internet domain:	
Local Internet domain smart host:	
Smart host is used for all local internet domain recipients:	Disabled
Host name lookup:	Dynamic then local

Caution If you have add-in products that rely on mail and run on your Domino server, be sure to test their coexistence in your test environment before configuring multiple mail.box databases. Some products do not work with multiple mail.box databases, for example, the 4.6 cc:Mail MTA.

The default housekeeping time for mail.box databases is 4 AM. Each mail.box database on the server is sequentially compacted. To disable the compaction, use the NOTES.INI parameter MailCompactDisabled=1. To configure additional mail.box compactions, use `tell router compact` at the server console or `scheduled` through Program documents.

When you configure the server to use multiple mail.box databases, the server will automatically create the number of extra mail.box databases that you have specified. You will need to bounce the Domino server (stop and restart the server) after changing the number of mail.box databases, as the Domino server creates them at startup.

The server will first rename the original mail.box to mail1.box. Additional mail.box databases will be called mail2.box, mail3.box, and so on, up to the number specified. Any mail in the original mail.box will not be lost, though it is suggested that you ensure the mail.box is empty or make a backup of the database before starting.

For more technical details on Domino R5 mail routing, see the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Review of 4.6x SMTP MTA architecture

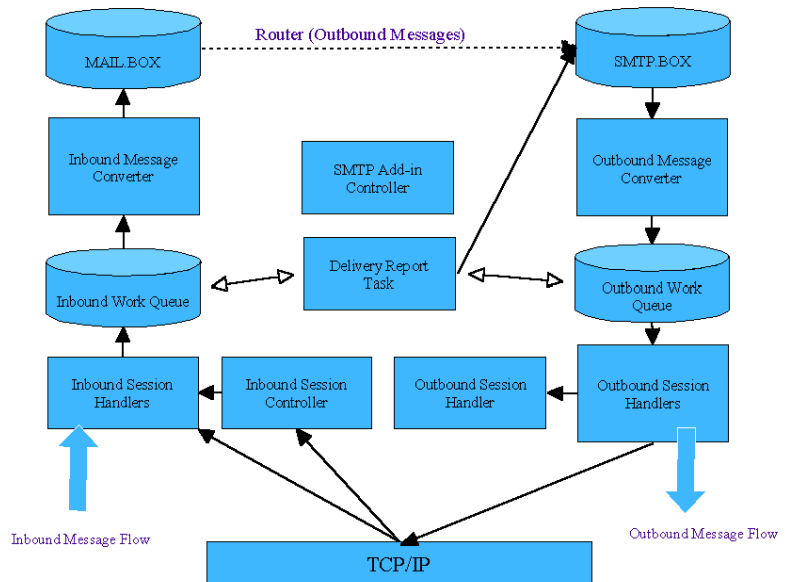
In Domino R4.6, Lotus provided the Domino SMTP MTA as an add-in to the Domino server. The SMTP MTA supported SMTP routing between a Domino server and the Internet. The Domino R4.6 SMTP MTA performed the following functions:

- Compared an e-mail address against the Global Domain Document, determined the e-mail was to be delivered external to the domain, and used the Foreign Domain Document to identify how to deliver the message.
- Converted the message from NRTF to MIME.
- Listened for inbound SMTP traffic and identified the Notes mail recipient.
- Accepted the incoming MIME format and converted it to NRTF.

During the SMTP MTA conversions from Notes rich text to MIME, the mail could lose a lot of formatting. In addition, since the Domino SMTP MTA had to convert the outbound and inbound SMTP mail from MIME to Notes RTF, there was a heavy processing load on the servers running this conversion task, which was a single-threaded process. In Domino R5, this is multi-threaded, as any of the router threads can perform format conversion.

This architecture is illustrated in the following figure.

R4 SMTP MTA - Data Flow



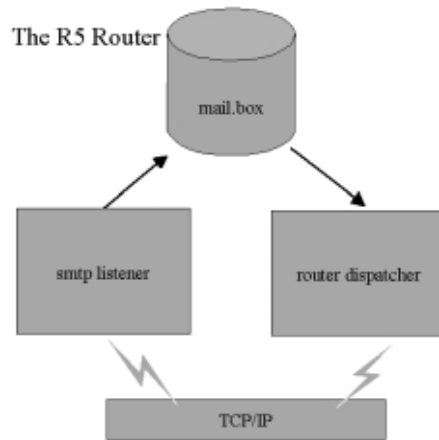
R5 SMTP architecture

In Domino R5, SMTP routing is native, meaning that the Domino Router can route both NRPC and SMTP protocols from one mail.box database. SMTP mail routing in Domino R5 no longer requires inbound and outbound processing queues, and the SMTP MTA no longer has to convert Notes RTF messages to MIME before sending the e-mail out, though this is in part dependent upon the format used by the Notes client to send e-mail.

In a mixed environment of protocols or code versions of Domino servers, a Domino R5 SMTP server converts between formats “on the fly” or as necessary. For example, if an R4 Notes client writes a Notes RTF message to a mail.box destined for user@mycompany.com, and the R5 server can route directly to the Internet, it converts the message to MIME and sends it over SMTP.

Domino R5 architecture

The Domino R5 architecture is illustrated in the following figure.



Enabling the SMTP listener task

To allow the R5 Domino server to listen for incoming SMTP traffic, the SMTP listener task must be enabled. This field is located on the Basics tab of the Domino Server document. SMTP Mail Routing in the “Routing tasks” field is used in a mixed NRPC/SMTP environment. It is not required in a full SMTP mail routing environment in Domino. We recommend that you do not remove this from your Domino setup.

Routing tasks:	<input checked="" type="checkbox"/> Mail Routing, SMTP Mail Routing
SMTP listener task:	<input checked="" type="checkbox"/> Enabled

Starting the SMTP configuration

To configure various architectures for your mail and SMTP mail routing, access **Configuration Settings > Router/SMTP > Basics** on the Configuration tab with the Administration client.

CONFIGURATION SETTINGS	
Basics	LDAP Router/SMTPE MIME NOTES.INI Settings Administration
Basics	Restrictions and Controls Message Tracking Advanced
Router/SMTPE Basics	
Number of mailboxes:	2
SMTP used when sending messages outside of the local internet domain:	Enabled
SMTP allowed within the local internet domain:	MIME messages only
Servers within the local Notes domain are reachable via SMTP over TCP/IP:	Only if in same Notes Named Network
Address lookup:	Fullname then Local Part
Exhaustive lookup:	Disabled
Relay host for messages leaving the local internet domain:	
Local Internet domain smart host:	
Smart host is used for all local internet domain recipients:	Disabled
Host name lookup:	Dynamic then local

SMTP used when sending messages

When you enable the option “SMTP used when sending messages outside of the local Internet domain,” this allows the Domino R5 server to use SMTP to route messages to the Internet. You will need the appropriate DNS MX records in place.

- If enabled, you can configure *all* your Domino R5 Mail servers to send directly to the Internet. You can also set up one server or a subset of servers that can send e-mail to the Internet, using the Relay Host as specified in the Server configuration document.
- If disabled, this server would not send Internet mail via SMTP. If set on all your R5 servers, no server would route mail to the Internet. If set on one server, this server would route Internet mail via NRPC to a Domino server within the domain that had an Internet connection. This would be set up via SMTP Connection documents and Foreign Domain documents, as used in Domino R4.x

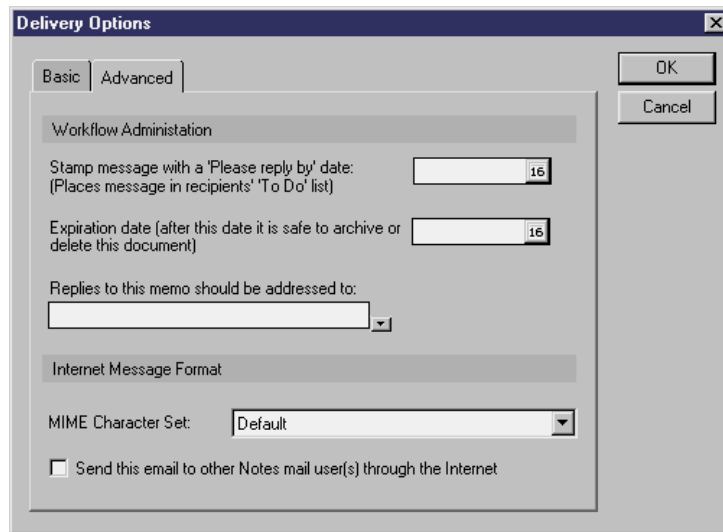
SMTP allowed within local Internet domain

There are three options for the “SMTP allowed within the local Internet domain” field. They are MIME messages only, Disabled, or All Messages.

- If enabled for All Messages, all Notes e-mail, both within the Domino domain and to the Internet, would be transported via the SMTP protocol. No e-mail is transported with NRPC.

Caution This will disable any Calendaring and Scheduling functionality within your Domino R5 domain, since Calendaring and Scheduling use the NRPC protocol. Calendaring messages from Notes sent over SMTP will appear as e-mail, not as calendar appointments or events.

- If enabled for MIME messages only, any Internet e-mail sent from the client would be transported via SMTP as determined by the use of a period (*.*) in the recipient's domain side of their address, or by the client set in the Advanced Delivery options for the e-mail to another Notes client to be transferred via SMTP. This would reduce the number of conversions needed between NRPC and SMTP within domains.



- If disabled, all e-mail within the Domino domain would be routed via NRPC. This is similar to Domino R4.x, and would require the Domino server that is dedicated to SMTP mail routing to convert Notes RTF messages to MIME. If the “User Preferences for message storage” in the Person document are set to Prefers Notes Rich Text, the Mail server router will need to convert Internet mail from Notes RTF to MIME for SMTP routing.

For more information on possible configurations for the Domino R5 SMTP architecture, see the product documentation *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA, or the IBM redbook *A Roadmap for Deploying Domino in the Organization*, IBM form number SG24-5617, Lotus part number CT6P8NA.

Relay Host

The “Relay host for messages leaving the local internet domain” option gives you some load balancing capabilities. Not every R5 server has to send and receive SMTP traffic; you can designate a single R5 server to send SMTP traffic to the Internet. All your other R5 servers would send their SMTP mail to that server, which would then send the traffic to the Internet. You can also designate a third-party server, such as a Firewall, as a relay host.

Smart Host

Smart Host can be enabled if your Internet domain (for example, redbook.com) consists of your Domino server and other mail servers not in your Domino Public Directory. A Smart Host can be used when you have recipients in a non-Domino directory who are still in the local Internet domain.

For example, let’s say you have a sendmail server with an X.500 directory with some users in it. If Domino knows the local domain is acme.com, and cannot find a user of jane_doe@acme.com, it will forward the message to the Smart Host if one is configured.

You can also set the Smart Host to look at the directory for the other server, so if Domino doesn’t find John_Doe@redbook.com, it passes the traffic to the other server.

For more information on possible configurations for the Domino R5 SMTP architecture, see the product documentation *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA, *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA, or the IBM redbook *A Roadmap for Deploying Domino in the Organization*, IBM form number SG24-5617, Lotus part number CT6P8NA.

NRPC and SMTP routing

This scenario in a Domino domain uses the new Domino SMTP mail routing in Domino R5 and still maintains access to certain functionality, such as Calendaring and Scheduling, that relies on NRPC routing.

Since many systems do not accept connections or mail from servers that are improperly configured or not registered, as a safeguard against spam and as a relay security measure, you may be required to register (with the InterNIC) each server in your domain that routes SMTP mail to the Internet.

Enabling SMTP routing on all mail servers in your organization does not mean that each server needs direct Internet access. You can configure SMTP mail for the Internet to be routed to a relay host. The relay host can be an R5 server, an R4 MTA, or a third-party product.

Internet routing in multilingual environments

The challenge of supporting non-English character sets centers around the simple issue of character representation: the value that represents a character in one character set can often represent a different character in another character set.

In earlier Domino releases, Notes stored textual data using its own character set, called the Lotus Multi-Byte Character Set (LMBCS), which represents characters in virtually all of the world's languages. Within Notes and Domino, the text remained in LMBCS and was converted to and from the character set of your local operating system for display and input.

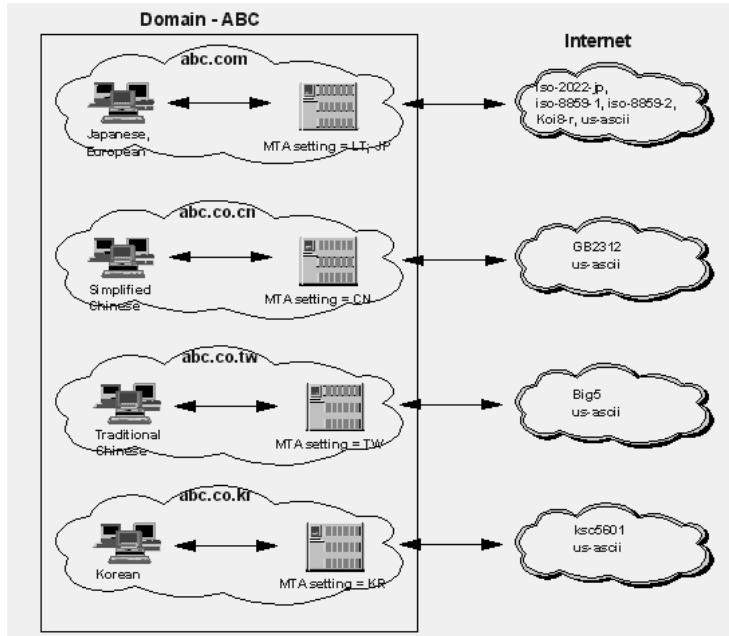
The SMTP MTA converted both inbound and outbound Internet mail. The MTA passed the message to Notes Conversion Services (CVS), which determined the character set to associate with text contained in the message item. If CVS encountered a message composed using character sets other than ASCII, such as Asian languages, it could have problems. Many of the Asian alphabets contain characters that look the same, but have different meanings.

During the creation of the UNICODE standard, the common characters in some Asian alphabets were assigned the same number to save space. Therefore, whichever language CVS found first in the pre-loaded character sets of the MTA would be used to convert the message.

Most administrators of multilingual environments would have set up specific language SMTP MTAs using the "Language Parameters" settings in the "Conversion options for Asian languages" field. Each of these MTAs would be in their own domain.

Configuring Domino 4.6.3 SMTP for multilingual messaging

This is how you would configure multilingual messaging in Domino R4.6.3:

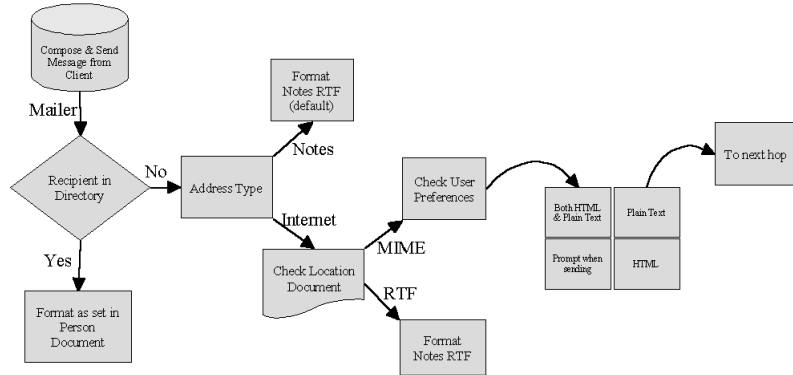


MIME support in Domino R5

The MIME standard allows for the representation and transmission of messages that contain data other than plain text, such as images, HTML, sound clips, spreadsheets, etc. A MIME message contains parts, where each part is tagged with a content type, such as “text/html” or “image/gif.” Each of these content types can also be tagged with a character set name, such as “US-ASCII” or “EUC-KR” (Korean). This character set name indicates how to interpret the bytes in the text.

In Domino R5, MIME is supported natively. The Notes client settings, including the Location document and Account documents, the Person document and the mail configuration, will determine whether Internet e-mail is sent at NRPC or MIME in Domino R5.

The following figure shows the process that is used to decide the e-mail format sent from a Notes client.



Refer to Chapter 15, “Mail,” for more details on the client configuration.

Available character sets

For configuration purposes, Notes divides the world’s languages and character sets into 16 groups:

- English
- Western (Danish, Dutch, Finnish, French, German, Italian, Portuguese, Norwegian, Spanish, Swedish)
- Central European (Czech, Hungarian, Polish, Romanian, Slovenian, Slovakian)
- Turkish
- Baltic Rim (Estonian, Latvian, Lithuanian)
- Greek
- Cyrillic (Bulgarian, Belorussian, Russian, Ukranian)
- Arabic
- Hebrew
- Japanese
- Korean
- Simplified Chinese (Chinese used in the People’s Republic of China)
- Traditional Chinese (Chinese used in Taiwan)
- Thai
- Vietnamese
- Unicode (Universal character set)

Some of these groups (such as Thai or Japanese) correspond to a single language, and others (such as Western or Central European) correspond to a region where there are multiple languages that use mostly the same characters. Many of the European character sets tend to use the same bytes and byte ranges, while the Simplified Chinese, Japanese, Korean and Traditional Chinese (CJKT) character sets tend to use only certain byte ranges or use special uniquely identifiable control codes.

Domino R5 does support MIME natively “out of the box” and will usually require no additional configuration, although you can define settings for Primary and Secondary Character Set in the international MIME configuration. You can define one primary character set and multiple secondary character sets. If these primary and secondary character set fields are configured, Domino performs autodetection of character sets for inbound and outbound messages with no character set tag.

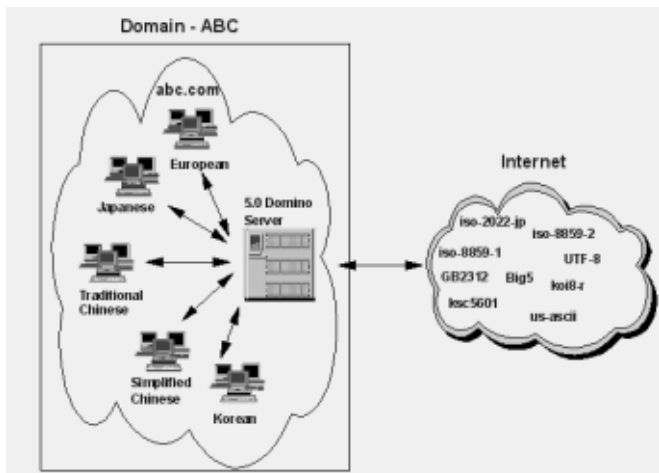
For inbound messages, character set autodetection is required when incoming MIME or Non-MIME messages do not contain character set information. Older mail systems and newer Web-based mail systems (Hotmail, for example) allow messages to be created in many languages, but when the message is generated, no character set information is provided in the message.

Note If the wrong character set is chosen by Domino, the client can override this by right-clicking on the incoming message and choosing a different character set in which to display the message.

Since you can specify primary and secondary character sets, and Domino R5 natively supports MIME and will automatically detect English, a Domino R5 SMTP-enabled server can serve multiple languages.

Configuring Domino R5.0 SMTP for multilingual messaging

The following figure shows how to configure Domino R5.0 for multilingual messaging:



To configure international MIME settings for Domino R5, perform the following steps:

1. On the Configurations Tab of the Domino Administrator, select Server - Configuration. Select Configuration Settings document and edit configuration.
2. On the Basics tab, select Enabled in the “International MIME settings for this document” field.
3. On the MIME/Basics tab, select the primary and secondary character set groups.
4. On the MIME/Settings by Character Set Groups tab, specify the inbound and outbound options.
5. On the MIME/Advanced tab, specify the inbound and outbound options.

In a *single* language environment, you only need to configure a server or client for one language group. You do not need to choose a secondary character set.

In a *multiple* language environment, configure the primary and secondary character sets based upon what group corresponds to the majority of your inbound and outbound Internet traffic.

Note Automatic inbound detection of ISO-2022-JP and ISO-2022-KR, two of the most commonly used Japanese and Korean character sets, respectively, is available in R5.0.2. With this automatic detection, you will no longer need to specify Japanese or Korean as a primary or secondary group for detection of ISO-2022-JP and ISO-2022-KR

Note The IMAP and POP server tasks can convert from Notes format to MIME to deliver messages to IMAP and POP clients.

For more information on MIME, see “Worldwide messaging: Using International MIME in R5” on the Web at www.notes.net/today.nsf

S/MIME

S/MIME is a new standard for encrypted and digitally signed electronic mail. Developed by RSA Data Security, S/MIME enables users of Web messaging clients to send encrypted messages and authenticate received messages. S/MIME delivers message encryption and authentication with the flexibility, interoperability, and cost-effectiveness of Web-based messaging.

S/MIME offers users the following basic features:

- Encryption for message privacy
- Sender authentication with digital signatures
- Tamper detection
- Interoperability with other S/MIME compliant software
- Seamless integration into Netscape Messenger
- Cross-platform messaging

The Notes R5 User client can use X.509 Internet Certificates stored in the Notes ID file to send e-mail using S/MIME. Both the sender and receiver of the message must have an X.509 certificate in common. Messages are encrypted using the recipient’s X.509 public key.

X.509 Certificate Public Key can be obtained through the Domino Directory, or by sending one another X5.09-signed messages. Messages are only encrypted if sent in MIME format, or if the field in the Location document is set to send Internet mail in MIME format. Encryption can be chosen as a delivery option when sending mail.

Caution Once a user’s Notes ID imports an X.509 certificate, ensure a backup is taken of the new ID. Any mail received S/MIME-encrypted will not be readable by the original Notes ID.

If a Domino R5 user receives an encrypted (S/MIME format) message which has been converted, the router creates an attachment containing the S/MIME and creates a Notes format message explaining that the message is encrypted and cannot be converted to Notes format.

Note Only the body of the message is encrypted — the Subject field is not encrypted and could be read.

For more information on configurations possible for Secure MIME, see the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Configurations

The Domino R5 SMTP router has a number of tools that offer more control over routing than the MTA. In Domino R5, you have the ability to restrict inbound and outbound mail based on:

- Transport controls
- Domain
- Hierarchy
- Size
- Author's mail address
- Mail relay

Starting to configure

You can access these controls by going into the R5 Administrator, selecting your server, and clicking Configuration - Messaging - Configurations. Select either the default, Server or Server Group configuration needed.

Some of the most important fields here allow you to set up your messaging to prevent denial of service or spam messages in your domain.

On the Restrictions and Control Tab, there are five additional tabs available:

- Restrictions (Router/SMTP restrictions)
- SMTP Inbound Controls
- SMTP Outbound Controls
- Delivery Controls
- Transfer Controls

Some of the more significant fields that specify your configuration for each of these parameters are discussed in this section.

Restrictions tab

The Restrictions tab looks like this:

The screenshot shows the Domino Administration Client interface. At the top, there are tabs for Basics, LDAP, Router/SMTP, MIME, NOTES.INI Settings, and Administration. The Router/SMTP tab is selected. Below this, there are sub-tabs for Basics, Restrictions and Controls, Message Tracking, and Advanced. The Restrictions and Controls sub-tab is selected. Within this sub-tab, there are further options: (Restrictions), SMTP Inbound Controls, SMTP Outbound Controls, and Delivery Controls. The (Restrictions) option is selected, displaying the 'Router Restrictions' section. This section contains several configuration fields:

Router Restrictions	
Allow mail only from domains:	
Deny mail from domains:	
Allow mail only from the following organizations and organizational units: (*/*Acme, /*Sales/Corp)	
Deny mail only from the following organizations and organizational units: (*/*Acme, /*Sales/Corp)	
Maximum message size:	750000 KB
Send all messages as low priority if message size is between:	Enabled 20000 KB and 750000 KB
Obey database quotas during message delivery:	Disabled

Maximum message size

R5 now has the capability to limit the size of messages and/or attachments that it processes. Setting this helps to prevent certain kinds of denial of service attacks on your domain, and can help you manage your network bandwidth between your server and the Internet. The default is zero, meaning no size limit is imposed.

Send all messages as a low priority if message size is between

Used in conjunction with the “Maximum message size” field, any message or attachment falling into the “Message size is between” range is routed as low priority mail. If you don’t want to limit the size of attachments with the Maximum message size, this is a good way to reduce the performance impact that large attachments can have on your Domino server.

You can control when a message designated as low priority is delivered by clicking the Router/SMTP - Restrictions and Controls - Transfer Controls tab on the same screen and making an entry in the “Low priority mail routing timerange.” We recommend that you set the Low priority time range in the Administration client.

The following parameter is added to the NOTES.INI file when setting the priority time range - MailLowPriorityTime=0:00-03:00. This example will set the time to be from midnight to 3:00am.

Obey database quotas during message delivery

R5 lets administrators impose a size limit on each user's mail databases. If you enable "Obey database quotas during message delivery," the SMTP router won't deliver mail to a mail file if that delivery exceeds the size of the database the administrator has defined as the maximum. The user will receive an error message when opening their mail file stating that a database object cannot be allocated to their mail file, as it would exceed the disk quota.

SMTP Inbound Controls tab

The SMTP Inbound Controls tab looks like this:

Basics	LDAP	Router/SMTP	MIME	NOTES.INI Settings	Administration
Basics	Restrictions and Controls	Message Tracking	Advanced		
Restrictions	SMTP Inbound Controls	SMTP Outbound Controls	Delivery C		
Inbound Relay Controls					
Allow messages from external internet domains to be sent only to the following internet domains:					
Deny messages from external internet domains to be sent to the following internet domains:					
Allow messages only from the following external internet hosts to be sent to external internet domains:					
Deny messages from the following external internet hosts to be sent to external internet domains:					
Inbound Connection Controls					
Verify connecting hostname in DNS: Disabled					
Allow connections only from the following SMTP internet hostnames/IP addresses:					
Deny connections from the following SMTP internet hostnames/IP addresses:					
Inbound Sender Controls					
Verify sender's domain in DNS: Disabled					
Allow messages only from the following external internet addresses/domains:					
Deny messages from the following internet addresses/domains:					
Inbound Intended Recipients Controls					
Allow messages intended only for the following internet addresses:					
Deny messages intended for the					

Allow messages from external internet domains to be sent only to the following internet domains

This option works well if you are using your Domino server as an extranet server that shares mail with only a few other domains. This setting prevents relaying of mail from external domains listed.

Verify connecting hostname in DNS

Some individuals may try to route mail by pretending to be a nonexistent system. If you begin receiving a lot of spam from make-believe systems, try enabling this option. It does introduce some processing overhead to your system, since every inbound message address is checked against DNS.

Verify sender's domain in DNS

Similar to the check for the sender's hostname, this option verifies that the domain specified as part of the sender's address in the MAIL FROM command is a valid domain in DNS. This prevents you from receiving mail from fictitious domains. As with the hostname check, this option can impose a slight processing overhead on your Domino server.

For more information on configuring your Domino server to prevent spam mail, see the article, "Notes spam mail filtering: Domino messaging restrictions and controls," at <http://www.notes.net/today.nsf>.

SMTP Outbound Controls tab

The SMTP Outbound Controls tab looks like this:

The screenshot shows the Domino configuration interface with the 'Router/SMTP' tab selected. Within this tab, the 'Restrictions and Controls' sub-tab is active. Under the 'Restrictions' section, the 'SMTP Outbound Controls' sub-tab is selected. The main content area is titled 'Outbound Sender Controls' and contains four sections for configuring message restrictions:

- Allow messages only from the following Internet addresses to be sent to the Internet:** (Empty list box)
- Deny messages from the following Internet addresses to be sent to the Internet:** (Empty list box)
- Allow messages only from the following Notes addresses to be sent to the Internet:** (Empty list box)
- Deny messages from the following Notes addresses to be sent to the Internet:** (Empty list box)

Allow messages only from the following Notes addresses to be sent to the Internet

In Domino R4.x, if a user had an ID in the Name and Address Book, that user could send and receive SMTP traffic. This option allows you to restrict the addresses that are allowed to send mail to the Internet. If you have only a few people who need access to Internet e-mail in your organization, list their addresses here. Leaving this field blank allows all addresses to send mail to the Internet.

Deny messages from the following Notes address to be sent to the Internet

You can use this option if most of the people in your organization, with just a few exceptions (such as temporary staff), need Internet e-mail. You can list the few exceptions in this field. Leaving this blank enforces no denial.

Delivery Controls tab

The Delivery Controls tab looks like this:

The screenshot shows the Domino Administration Console with the 'Router/SMTP' tab selected. Within this tab, the 'Restrictions and Controls' sub-tab is active. Under 'Restrictions and Controls', the 'Delivery Controls' sub-tab is selected. The 'Delivery Controls' section contains three settings:

Delivery Controls	
Maximum delivery threads:	<input type="text" value="25"/>
Encrypt all delivered mail:	<input checked="" type="checkbox"/> Disabled
Pre-delivery agent timeout:	<input type="text" value="30"/> seconds

Maximum delivery threads

A thread is a way of sharing the CPU within an application. It is a piece of code that owns a stack, registers, and its priority. It shares everything else (code, variables, and so forth) with all the other threads in the process.

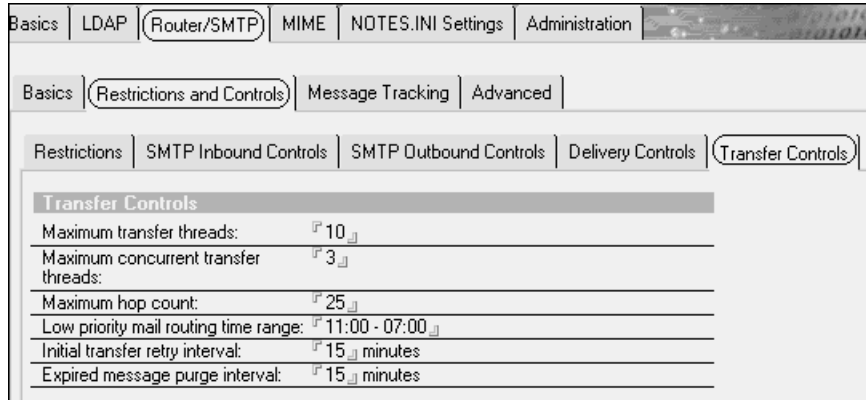
This options specifies the maximum number of threads that Domino can create to deliver mail to the user's mail files. It is recommended that you leave this field blank, as this lets Domino dynamically configure the number of threads to be used.

Pre-delivery agent timeout

Pre-delivery agents is a new mail rule in Domino R5. Agents using the pre-delivery rule will process mail before it is delivered to the user's mail file. This option allows the server to timeout when processing these agents, when the Pre-delivery agent is enabled. The default is 30 seconds.

Transfer Controls tab

The Transfer Controls tab looks like this:



The screenshot shows the Domino configuration interface. At the top, there are tabs: Basics, LDAP, Router/SMTP (selected), MIME, NOTES.INI Settings, and Administration. Below these, there are sub-tabs: Basics, Restrictions and Controls (selected), Message Tracking, and Advanced. Under Restrictions and Controls, there are further sub-tabs: Restrictions, SMTP Inbound Controls, SMTP Outbound Controls, Delivery Controls, and Transfer Controls (selected). The Transfer Controls section contains the following settings:

Transfer Controls	
Maximum transfer threads:	10
Maximum concurrent transfer threads:	3
Maximum hop count:	25
Low priority mail routing time range:	11:00 - 07:00
Initial transfer retry interval:	15 minutes
Expired message purge interval:	15 minutes

Maximum transfer threads

This option allows you to specify the maximum number of server threads that Domino creates to transfer messages to all other servers. It is recommended that you leave this field blank, as this allows Domino to dynamically configure the number of transfer threads required.

Maximum concurrent transfer threads

This field specifies the maximum number of server threads that Domino creates to transfer messages to a single destination. The default is one-half the maximum transfer threads. It is recommended that you leave this field blank to allow Domino to dynamically configure the number of concurrent transfer threads required.

Maximum hop count

This field specifies the maximum number of times a message can be transferred between servers before delivery fails and Domino returns a non-delivery message to the sender (or marks it as dead).

Extended SMTP

Extended SMTP (E/SMTP) extensions define additional information to be processed by an SMTP server. Domino supports a number of E/SMTP functions which provide some of the controls for SMTP available in Domino for NRPC routed mail. These include the ability to combine (or pipeline) commands, set the server to check message size before accepting transfer, create a secure SSL connection with another server, and create delivery status notifications in MIME format.

In the Control tab, you can set extensions sent and accepted.

The screenshot shows the Domino Control Panel interface. The top navigation bar includes tabs for Basics, LDAP, Router/SMTP (selected), MIME, NOTES.INI Settings, and Administration. Below this, a secondary navigation bar shows Basics, Restrictions and Controls, Message Tracking, and Advanced (selected). The main content area is divided into two sub-tabs: Commands and Extensions (selected) and Controls. Under the Commands and Extensions sub-tab, there are two tables: 'Inbound SMTP Commands and Extensions' and 'Outbound SMTP Commands and Extensions'. Both tables list various SMTP extensions and commands with their status (Enabled or Disabled).

Inbound SMTP Commands and Extensions:		Outbound SMTP Commands and Extensions:	
SIZE extension:	Enabled	SIZE extension:	Enabled
Pipelining extension:	Enabled	Pipelining extension:	Enabled
DSN extension:	Disabled	DSN extension:	Disabled
8 bit MIME extension:	Disabled	8 bit MIME extension:	Disabled
HELP command:	Enabled		
VERFY command:	Disabled		
EXPN command:	Disabled		
ETRN command:	Disabled		
SSL negotiated over TCP/IP	Disabled		
port:			

Extensions in Domino include the following:

- Extended “turn” (ETRN): Allows a server to request a push on an established connection
- Size: Maximum size that the server accepts
- Pipelining: Send multiple SMTP commands in a single network buffer
- Delivery Status Notification (DSN): Defines formal delivery failure information
- 8bitMIME: Send 8bit text unencoded

For more information on configurations possible for Domino R5 ESMTP, see the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Troubleshooting

The Domino R5 SMTP routing feature provides some diagnostic tools that were unavailable in Domino R4.x. Among them are the following:

- Mail tracking
- Message trace
- Customized failure messages
- Maps
- RFCs

This section briefly describes these features. Additional information is in the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Mail tracking

Mail tracking gives the Domino administrator the ability to track a message sent by a user to determine the number of hops it takes, and the time required for each delivery relay.

Mail tracking is outlined in Chapter 22, “Monitoring.”

Message trace

Message trace is a feature which allows you to get a list of servers between you and a given destination. This will help you to identify any problems with the route of the e-mail across the Internet.

To perform a trace, open the Domino Administrator and select your server. On the Messaging tab, select the Mail tab.

On the right-hand side of the screen, click Messaging - Send Mail Trace. Enter the recipient's name in the small dialogue box. Click Send.

Customized failure messages

You can set up customized failure messages to append to the default Domino messages that the client receives from the router. You can even create multiple customized messages for different categories of users, such as External and Internal users, through different Configuration Settings.

Customized failure messages are configured by clicking the Advanced - Controls tab.

The screenshot shows the Domino Administrator configuration window. The top tabs are Basics, LDAP, Router/SMTP, MIME, NOTES.INI Settings, and Administration. The 'Router/SMTP' tab is selected. Within this tab, the sub-tabs are Basics, Restrictions and Controls, Message Tracking, and Advanced. The 'Advanced' sub-tab is selected. Under 'Advanced', there are two sub-tabs: Commands and Extensions, and Controls. The 'Controls' sub-tab is selected. The 'Controls' sub-tab is divided into two sections: Miscellaneous Controls and Advanced Transfer Controls. The Miscellaneous Controls section has a single setting: Logging level: Normal. The Advanced Transfer Controls section has two settings: Ignore message priority: Disabled and Dynamic cost reset interval: 60 minutes. To the right of these settings is a table titled 'Additional Controls (Delivery and Transfer)'. This table has two columns: Control Name and Value. The controls and their values are: Restrict name lookups to primary directory only: Disabled, Cluster failover: Enabled for last hop only, Hold undeliverable mail: Disabled, Transfer failure text file: transfail.txt, Delivery failure text file: delivfail.txt, Message expiration text file: msgexp.txt, Domain failure text file: domainfail.txt, Server failure text file: servfail.txt, Username failure text file: usernfail.txt, Size failure text file: sizefail.txt, and Restriction failure text file: restrictfail.txt.

Additional Controls (Delivery and Transfer)	
Restrict name lookups to primary directory only:	Disabled
Cluster failover:	Enabled for last hop only
Hold undeliverable mail:	Disabled
Failure Messages	
Transfer failure text file:	transfail.txt
Delivery failure text file:	delivfail.txt
Message expiration text file:	msgexp.txt
Domain failure text file:	domainfail.txt
Server failure text file:	servfail.txt
Username failure text file:	usernfail.txt
Size failure text file:	sizefail.txt
Restriction failure text file:	restrictfail.txt

Maps

Information from the Domino server mail connection documents and the Notes Named Networks can be shown as a topology map in the R5 Administrator client.

For more information on the use and setup of MAPS on the Domino R5 server, see Chapter 8, "Directory services."

RFCs

If you really want to understand Internet Protocols, then you should read the RFCs.

Not all of the RFC information is required before you can begin troubleshooting Domino SMTP, but you will find that even a casual reading will help.

The RFC index on the InterNIC can be found by searching for RFC's in any Web search engine.

Among the articles of interest are the following:

- RFC 821 - SMTP
- RFC 822 - Header & Body concept, syntax and order of header lines
- RFC 819 - Domain Naming Convention for Internet User Applications
- RFC 976 - UUCP Mail Interchange Format Standard
- RFC 1123 - Extension to RFCs 821 and 822 (Amendments & clarifications)
- RFC 1521, 1522, 1341 - MIME
- RFC 1651 - ESMTP
- RFC 1652 - 8BIT-MIME Extension
- RFC 1653 - Extension for Message Size Declaration
- RFC 1891, 1892, 1893, 1894 - Extensions and definitions for ESMTP

Summary

Domino R5 allows the administrator a good deal of flexibility when configuring the user's Domino R5 messaging architecture.

In this chapter, we discussed the following aspects of messaging architecture:

- R5 router types
- Multiple mail.box databases
- R5 SMTP architecture
- MIME and S/MIME
- Mail configurations
- Troubleshooting

Chapter 10

Web administration

The R5 Domino server comes as a fully functional Web server capable of supporting all the Internet standards. During the setup of your first R5 Domino Web server, you will notice some changes from previous releases. The first change is that the configuration allows for three different types of Web servers, depending on the services you will use:

- Web Mail
- Web Application
- Web Mail and Application

Security and performance settings are adjusted automatically based on the service level you select. Another major Web-related improvement in R5 is the introduction of cluster functionalities for Web clients.

This chapter discusses the following topics:

- Web server clustering
- Web authentication
- HTTP configuration
- Domino and Microsoft Internet Information Server
- Further Web enhancements
- Summary

For a closer look at the Web functions from a security point of view, refer to the redbook *Lotus Notes and Domino R5.0 Security Infrastructure Revealed*, IBM form number SG24-5341-00, Lotus part number CT6TPNA.

Web server clustering (ICM)

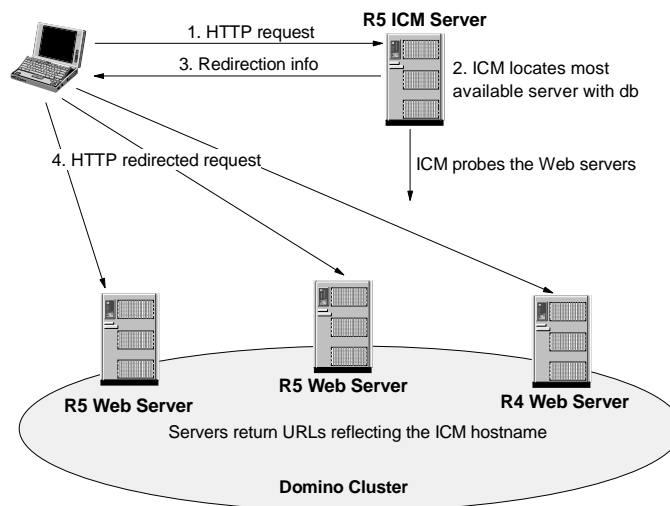
With R5, the familiar cluster functionality of failover and load balancing for Notes clients in R4 is now available for Web clients as well. The Internet Cluster Manager (ICM) is a new Domino server component. When a Web client accesses a URL on the ICM server, it can be directed to any of the cluster servers using this new function.

The ICM provides many benefits for Domino Web server infrastructures including the following:

- Cross-platform clustering
- Content-based failover and balancing
- Efficient use of hardware

The ICM monitors clustered Domino servers and their HTTP tasks for availability, thus determining the spread of new connections across the servers. It uses the Cluster Directory database (cldbdir.nsf) to determine the location of available databases. When it receives an HTTP request from a Web client, the ICM acts as an intermediary between the client and the Web server by using HTTP redirects to connect the client to the most available server.

The following figure illustrates how a Web client accesses a Web site. Notice that the initial request is directed to the ICM server, which then redirects the request. The ICM in this scenario is located outside the cluster.



Note The ICM is based on the HTTP task on the Domino servers. Therefore, it cannot be used with the IIS HTTP stack.

Infrastructure

You can establish a regular Domino cluster with your Web servers, as you are used to from R4. The Domino Web server in a cluster will generate URLs for clients that refer to the ICM server, to let the ICM choose the most available server. The Domino Web server reads the Server document in the Domino Directory to find the ICM server name. The ICM server itself can run inside or outside the cluster, on one or more servers. This flexibility creates a wide variety of possible setups, as follows:

- One ICM server outside the cluster
A dedicated ICM server machine for handling all of the client requests and redirections to the Web cluster. A dedicated ICM server can improve reliability because only a few other tasks will run on that server, minimizing sources of server failure.
- Multiple ICM servers outside the cluster
To gain availability for your ICM server, you can configure a second server with the same host name. This configuration eliminates the single point of failure. Multiple ICM servers also can be configured on a partitioned Domino server.
- One ICM server inside the cluster
The ICM can be configured on one of the cluster servers as well. You need to make sure that the server is able to handle the extra load. Also, avoid IP address or port number conflict. A separate IP address with a new port for the ICM can be configured, or the ICM needs a dedicated TCP/IP port.
- Multiple ICM servers inside the cluster
The inside configuration can be configured for high availability by using more than one server for the ICM task.

Refer to the online documentation Domino R5 Administration Help for figures showing the different topologies.

Coexistence

The ICM is able to redirect requests to R4 servers in the cluster. However, for the ICM to work, the URLs created by the server need to contain a reference to the ICM; the R4 server cannot create those URLs. Users, therefore, remain on that R4 server until they enter or select a URL referring to the ICM.

Note The ICM cannot be used for virtual servers.

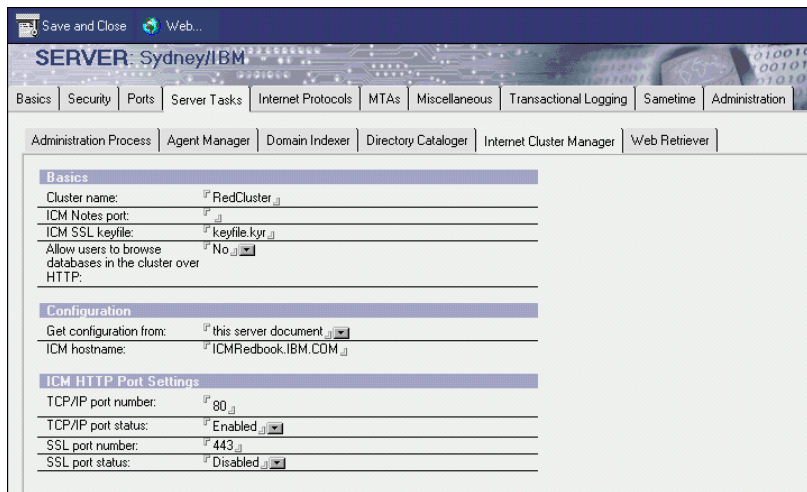
Configuration

A Domino Web server cluster is configured the same way as a regular cluster.

The ICM is configured in the Server document under Server Tasks - Internet Cluster Manager. A further ICM server can retrieve its information from another Server document, if so desired.

To set up a dedicated ICM, specify the cluster name and a host name for the ICM server.

If you run the ICM task in the cluster, you need to worry about separate IP addresses and ports.



The screenshot shows the Domino Server configuration window for 'Sydney/IBM'. The 'Server Tasks' tab is selected, and the 'Internet Cluster Manager' sub-tab is active. The configuration is divided into three sections: Basics, Configuration, and ICM HTTP Port Settings.

Section	Property	Value
Basics	Cluster name:	RedCluster
	ICM Notes port:	
	ICM SSL keyfile:	keyfile.kyr
	Allow users to browse databases in the cluster over HTTP:	No
Configuration	Get configuration from:	this server document
	ICM hostname:	ICMRedbook.IBM.COM
ICM HTTP Port Settings	TCP/IP port number:	80
	TCP/IP port status:	Enabled
	SSL port number:	443
	SSL port status:	Disabled

Start the ICM task separately on your server with the console command `load icm`.

The ICM configuration information must be included in each Server document of the cluster servers. That way, the cluster servers are able to determine the host name of the ICM server and include it in the URLs they generate.

Web authentication

If you are using a cascaded Public Name & Address Book for authentication of your Web clients, you will need to set up Directory Assistance for this functionality. The use of the NOTES.INI parameter NAMES= for cascading directories is no longer supported. We recommend that you configure the Directory Assistance document in a Master Address Book within your R4 environment first. Make sure this functionality works reliably on your R4 server, then upgrade to R5.

Note This change in authenticating Web users through cascading was introduced in R4.6.2.

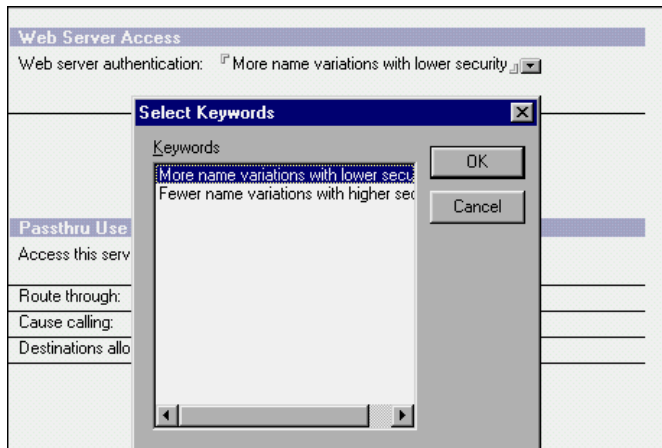
Name variations

Domino R5 allows for a more restrictive authentication of Web users. The R4 Domino Web servers accepted any of the following name variations:

- Last name only
- First name only
- Shortname
- Common name
- Full hierarchical name
- Any alias in the User name field

In R5, you can configure a more restrictive name resolution. Open your Server document and select the Security tab. In the “Web server authentication” field, you can specify *More name variations with lower security*, which is the R4 style, or *Fewer name variations with higher security*. The second choice reduces the accepted variations to the following:

- Full hierarchical name
- Common name
- Any alias in the User name field



Session authentication

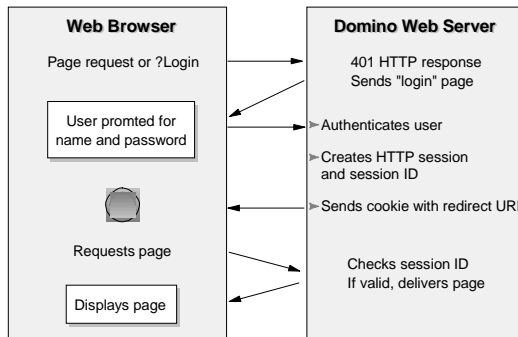
As an R5 enhancement to the basic user name and password authentication, a session-based authentication can be used for Web clients. The Web user authenticates once, when opening the first page on the Domino server. As long as this session is active on the server, the credentials are stored and no further logon is needed.

Basic authentication sends the user's credentials in the clear with every request, whereas session authentication sends the credentials only once (in the clear, if SSL is not enabled).

Using session-based authentication on your R5 server gives the administrator the following benefits:

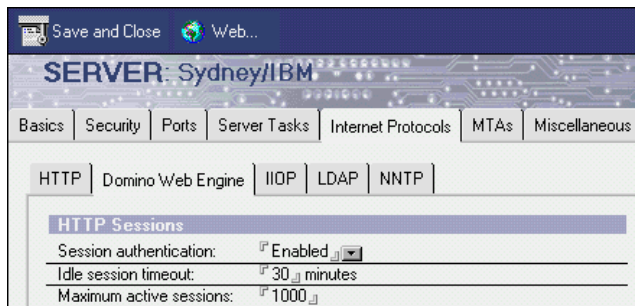
- Customized HTML login form
- Maximum number of active sessions
- Default logout time period
- Use of tell http show users to see connected users
- Realm definition not needed

For each Web user session, a cookie is created on the server. This stores a unique ID, name and password for identification. The user can access the server during one session without further authentication within the site. The workflow for establishing an HTTP session is shown in the following figure:



When the user ends the session by closing the browser or sending a ?logout request, or when the server session times out, the session authentication is invalidated. The cookie is destroyed and the user is considered anonymous.

Session-based authentication is configured in the HTTP Session section of the Server document, which is accessed by selecting Internet Protocols - Domino Web Engine tab.



Session-based authentication works with the IIS and with virtual servers. However, the `tell http show users` command cannot be issued with IIS, since the HTTP task is not running.

To configure a customized login form, you need to configure Login Form Mapping in the Domino Configuration database (domcfg.nsf) in addition to designing your desired form.

The screenshot shows a configuration window titled "Login Form Mapping". It is divided into two main sections: "Site Information" and "Login Form".

Site Information	
Server type:	<input checked="" type="radio"/> Server Wide Setting <input type="radio"/> Virtual Server Setting
Comment:	<input type="text"/>

Login Form	
Target Database file name:	<input type="text" value="domcfg.nsf"/>
Target Form name:	<input type="text" value="CustomLoginForm"/>

Realms

Web realms define a certain zone of protection within your Web site. This can be a certain directory, directory tree or database. The server associates users and passwords with a realm and sends its name in the HTTP Response header. Realms and their credentials are stored by the Web browser. Pattern matching is done by the browser to determine which credentials to send with a request. This is intended to minimize authentication done by a user within the same site.

The realm name is displayed in the logon dialog of the browser.

In R5, you can define your own realms according to the security needs of your site. To create a realm for your server, go to the Server document on the Configuration tab. From the pull-down menu of the Web action button, select Create Realm.

The screenshot shows a configuration window titled "WEB REALM for Sydney/IBM". It has tabs for "Basics" and "Administration", with "Basics" selected. The window is divided into three sections: "Web Server", "Path", and "Realm returned to browser when access is denied".

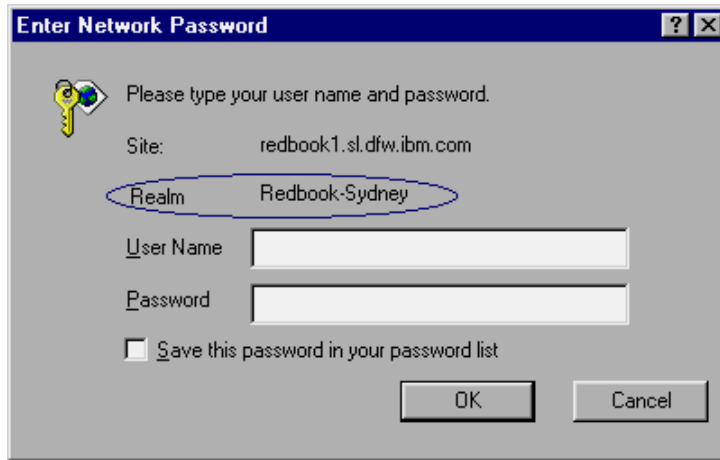
Web Server	
Applies to:	Sydney/IBM
IP Address:	<input type="text" value="10.10.10.10"/>

Path	
Path:	<input type="text" value="C:\notes\data"/>

Realm returned to browser when access is denied:	<input type="text" value="Redbook-Sydney"/>
--	---

Use the `tell http restart` command to enforce the changes.

When the Web user authenticates within that realm zone, the specified name is reflected.

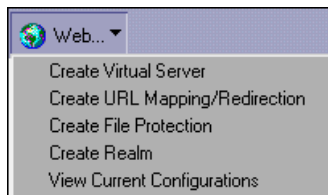


HTTP configuration

Much of the HTTP configuration done in the Domino Configuration database (domcfg.nsf) in R4 has now moved to the Domino Directory in R5. Specifically, the settings that are accessed in the Domino Directory are as follows:

- Directory mappings
- URL mappings
- URL redirection
- Virtual server

The configuration is done within the Administration client by selecting a Server document on the Configuration tab.



In the R5 Domino Configuration database, two configurations can be applied:

- Login form mapping
- Error message mapping

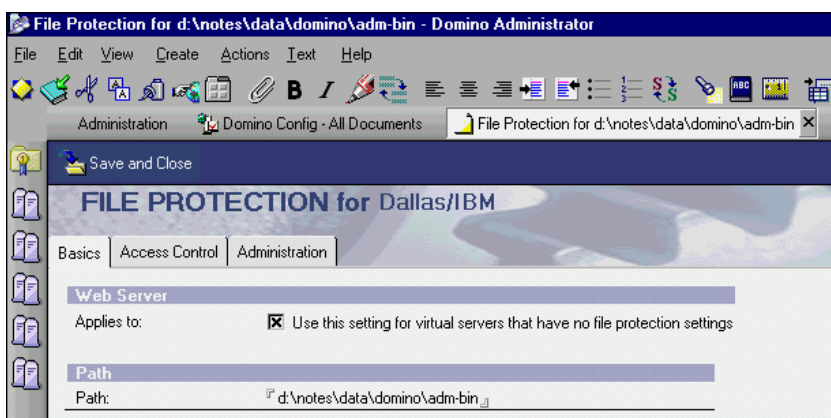
During the upgrade to R5, the configurations done in the R4 Domino Configuration database are automatically created in your R5 Domino Directory.

File protection

The file protection directives configured in the httpd.cnf file are not supported in R5. The configuration is now done in the Domino Directory through File Protection documents.

Important When you upgrade your R4 Web server to R5, there is no file protection until you configure the File Protection documents.

To create these documents, select the desired Server document on the Configuration tab. Select “Create File Protection” from the pull-down menu of the Web action button.



Tip There is a new httpd.cnf file available with the Domino R5 server. However, when you upgrade your server, your old httpd.cnf is not overwritten. Rename your httpd.cnf before upgrading to R5. After upgrading, apply any of your configurations to the new R5 http.cnf.

Domino and Microsoft Internet Information Server

Domino R5 servers can use the Microsoft Internet Information Server (IIS) as their HTTP stack. Any URL client request is handled by the IIS. If a request contains the extension .nsf, it is passed to the Domino server.

Domino uses the Internet Server Application Programming Interface (ISAPI) supported by the IIS to extend the capabilities of the IIS.

When you use the IIS with Domino, users accessing a Web page authenticate with the IIS first. The IIS relies on the NT user accounts for authentication, which brings the advantage of a single signon procedure for users. Microsoft IIS supports four methods of user authentication:

- Anonymous access (the user does not enter a name or password)
- Basic authentication (the user enters a name and password)
- Windows NT Challenge/Response (a special protocol supported by Microsoft Internet Explorer)
- SSL

If a user requests access to a Domino resource, IIS passes the authentication information to Domino. After the information is passed, Domino authenticates the user according to the same procedures used by the Domino server's native HTTP task. All of the directory options available for the native HTTP task, such as using multiple Domino Directories and LDAP directories, are also available for Domino for IIS.

For information on configuring the server to use IIS, refer to the online help "Domino 5 Administration Help."

This configuration is mainly intended for infrastructures already running the IIS and looking for the possibility of extending it with the Domino dynamic database advantages. If you set up a new Web server, using the Domino native HTTP task instead of IIS will enable you to utilize features such as the ICM.

Additional Web enhancements

The following sections cover additional Web enhancements.

Web agents

In Domino R5, the Web agents can be run asynchronously, meaning more than one Web agent can run at the same time. In R4.5.1, the NOTES.INI parameter DominoAsynchronizeAgents=1 was introduced. This setting is now available in the Server document under Internet Protocols — HTTP. Furthermore, a timeout period can be specified to terminate agents not responding. By default, this is disabled in the Server documents, so Web agents run sequentially.

Web Agents	
Run web agents concurrently?	Disabled
Web agent timeout (in seconds)	0

Browser evaluation

In R5, a new function @browserinfo("propertyname") is introduced. It can be used by developers of Web pages to determine the capabilities of the Web client. Specific views or forms can be used based on the client's capabilities.

The server file browser.cnf provides the directives to determine the capabilities of a Web browser. It is located in the \data path of your server.

Domino Server Application Programming Interface (DSAPI)

Domino R5 offers an application programming interface comparable to the ISAPI of the IIS. The DSAPI allows developers to customize HTTP server functions such as:

- Authentication
- Name translation
- Specialized logging
- Error handling
- Interface with external devices

Developers can create filters in the form of DLLs (Dynamic Link Libraries) that are loaded by the HTTP task on startup. The filter is notified during specific events, such as:

- Request is received
- User is authenticated
- User's group is created
- Request is completed

The DSAPI filters must be specified in the Server document under Internet Protocols - HTTP.

DSAPI
DSAPI filter file names:

Servlet support

The R5 Domino server has upgraded support for Java servlets. It is based on the specification issued by Sun's Java Servlet Development Kit (JSDK) 2.0.

The servlet settings can be found in the Server document by selecting Internet Protocols - Domino Web Engine.

Java Servlets	
Java servlet support:	None
Servlet URL path:	/servlet
Class path:	domino\servlet
Servlet file extensions:	
Session state tracking:	Enabled
Idle session timeout:	30 minutes
Maximum active sessions:	1000
Session persistence:	Disabled

International languages

Domino R5 allows the HTTP task to support different international character sets. This is configured in the Server document by selecting Internet Protocols - Domino Web Engine.

Character Set Mapping	
Default character set group:	<input type="text" value="Western"/>
Convert resource strings to:	<input type="text" value="English"/>
Use UTF-8 for output:	<input type="text" value="No"/>
Use auto-detection if database has no language information:	<input type="text" value="Yes"/>
Western:	<input type="text" value="ISO-8859-1"/>
Central European:	<input type="text" value="ISO-8859-2"/>
Japanese:	<input type="text" value="SJIS"/>
Traditional Chinese:	<input type="text" value="Big5"/>
Simplified Chinese:	<input type="text" value="GB"/>
Korean:	<input type="text" value="KSC5601(EUC)"/>
Cyrillic:	<input type="text" value="KOI8-R"/>
Greek:	<input type="text" value="ISO-8859-7"/>
Turkish:	<input type="text" value="ISO-8859-9"/>
Thai:	<input type="text" value="Windows-874"/>
Baltic:	<input type="text" value="Windows-1257"/>
Arabic:	<input type="text" value="Windows-1256"/>
Hebrew:	<input type="text" value="ISO-8859-8"/>
Vietnamese:	<input type="text" value="Windows-1258"/>
Character set in header:	<input type="text" value="Enabled"/>
Meta character set:	<input type="text" value="Disabled"/>

Refer to the online documentation “Domino R5 Administration Help” for a detailed description of the individual settings.

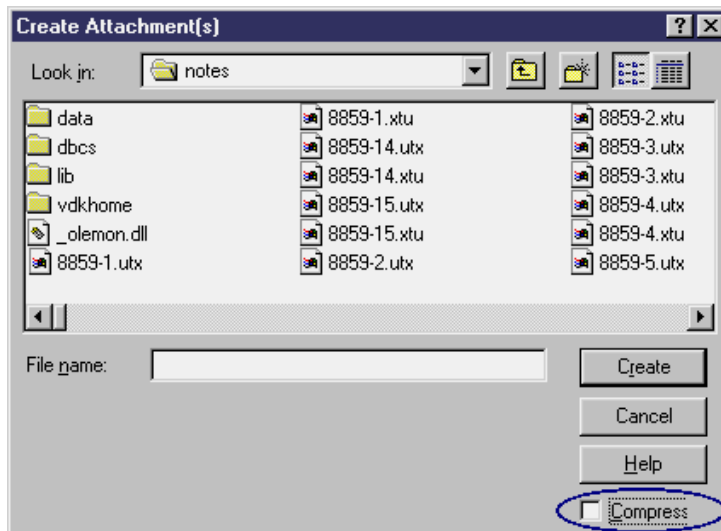
Byte-range serving

Byte-range serving is a new Domino R5 feature. It allows a Web client to download a file in sections (a range of bytes) rather than all at once. For example, in previous versions of HTTP and Domino, if a Web client loses the connection while downloading a file, the file download must be repeated from the beginning.

If the same situation occurs in Domino R5, the file download can start again from the point where it was interrupted. To take advantage of this feature, the Web user must use a client product that generates byte-range requests. Byte-range serving is also referred to as byteserving or page-at-a-time downloading.

Byte ranges are a part of the HTTP 1.1 protocol, which is still evolving under the guidance of the World Wide Web Consortium (W3C). The latest draft of the HTTP 1.1 specification can be found by selecting HTTP at the following Web address: www.w3c.org

Byte-range serving works either on files stored in the Domino\HTML directory or on those attached in a Notes document. The file must be in an uncompressed format because compression algorithms cannot allow byteserving. In Notes, attachments must be stored in their native format by deselecting the Compress check box in the Create Attachment(s) dialog box.



In addition, a setting called “File compression on upload” has been added to the POST Data section under Internet Protocols - Domino Web Engine of the Server document. Here you can specify whether compression should be used for files uploaded from browsers. The default is Disabled, so that byte-range serving will work.

POST Data	
Maximum POST data (in kilobytes):	<input type="text" value="0"/>
File compression on upload:	<input type="text" value="Disabled"/>

To take advantage of this feature, the Web user must use a client product that generates byte-range requests. HTTP 1.1 is relatively new, and currently there are only a few commercially available client products that have byte-range support. These products may be implemented in a variety of ways, such as browser plug-ins, applets, or standalone programs.

Domino R5 will automatically use byte-range serving when a Web client requests it.

Summary

With R5, the cluster functionality of failover and load balancing for Notes clients is now available for Web clients as well.

Security for your Web applications and the convenience of your Web users can be further increased through new authentication functionalities, such as session-based authentication.

For sites using IIS, the transition to or integration of Domino can be accomplished smoothly. An ISAPI extension for Domino allows the use of the IIS HTTP stack and the Domino server.

Overall, the Domino server as a Web server is now providing many enhancements that increase both functionality and performance.

Chapter 11

Security

The strategy for developing Domino has always been to adopt Internet standards very quickly. This is reflected in the security functions and enhancements incorporated in previous releases and in R5.

With Domino R4.5, SSL V2 support was introduced. Domino provided for server authentication and session encryption with a certificate authority obtained by a third party.

Domino 4.6 servers added support for Internet client authentication (SSLV3) using client certificates stored in the Public Name & Address Book in the Person documents. Domino R4.6 is also able to act as a certificate authority, issuing X.509 certificates for servers. With R4.61, certificates can be issued to browser clients as well.

In this chapter, we will present a brief introduction to the new R5 security features. For a comprehensive look at the security of a Domino server infrastructure, we recommend the redbook *Lotus Notes and Domino R5.0 Security Infrastructure Revealed*, IBM form number SG24-5341, Lotus part number CT6TPNA. It contains detailed information about all aspects of security, except for the Execution Control List (ECL).

We place special emphasis on the ECL in this chapter because, in our experience with customers, we have found that many sites do not use this feature, either because they are not aware of it or are not confident about the results and support. With R5.02, a more restricted ECL is introduced as a standard, which implies stronger considerations for upgrade.

Security enhancements also include functions such as realms, session authentication and DSAPI, which are discussed in Chapter 10, "Web administration." In addition, the new group management facility can be considered a security function. It is discussed in Chapter 21, "User administration," along with the password recovery process.

The topics covered in this chapter are as follows:

- Public key infrastructure
- X.509v3 certificate support
- 56-bit encryption
- VeriSign Global Server ID

- Execution Control List
- ACL management
- Authenticating Web clients via LDAP
- Summary

Public key infrastructure

Domino R5 provides powerful tools and functions for setting up a public key infrastructure (PKI) based on X.509. Lotus Notes has had its own PKI, based on technology licensed by RSA, since R1. To better understand what the term public key infrastructure stands for, see the list below for the components that work together within the PKI:

- Key and certificates
- Certifier (Certifier ID or certificate authority (CA))
- Directories for storing and retrieving certificates
- Policies for deciding which certifiers to trust and which not to trust
- Mechanisms for authenticating end points, issuing certificates, and delivering them
- Expiration and revocation of certificates

The tools Domino R5 provides for setting up an X.509 PKI include the following:

- Domino Directory
This stores certificates for Notes and X.509.
- Domino Certificate Authority Application
This manages certificate authorities (CA) key ring, approves and signs certificate requests, and transmits certificates to either the server or the browser.



See the redbook *Lotus Notes and Domino R5.0 Security Infrastructure Revealed*, IBM form number SG24-5341, Lotus part number CT6TPN, for step-by-step instructions on the Domino Certificate Authority Application and its functions.

X.509 V3 certificate support

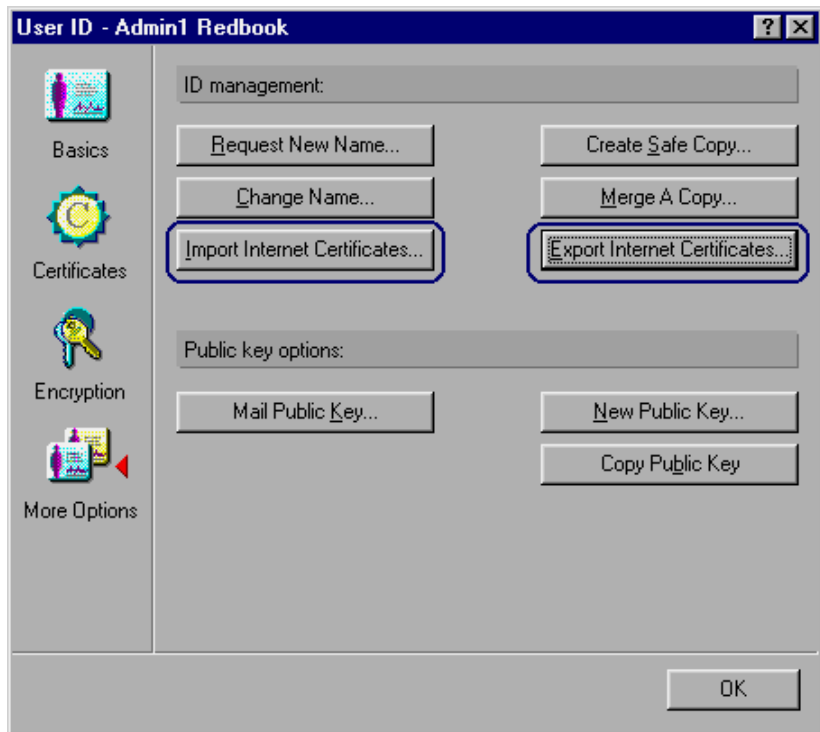
Domino R5 adds support for X.509v3 certificates in the Notes client. The Domino server continues the support for X.509v3 certificates introduced in R4.6.

Notes R5 clients can use X.509 certificates to encrypt and sign Internet communication based on HTTP with SSL or S/MIME. The X.509 certificates used to verify your identity can be imported into the Notes ID file. Further X.509 certificates for Web and mail security are stored in the Personal Address Book (names.nsf) of the client.

The Internet certificates stored in the Certificates view are trusted root certificates, used for the purpose of validating certificates signed with that trusted root (for example, a user's signature is trusted because the recipient and the sender share a certificate in common).

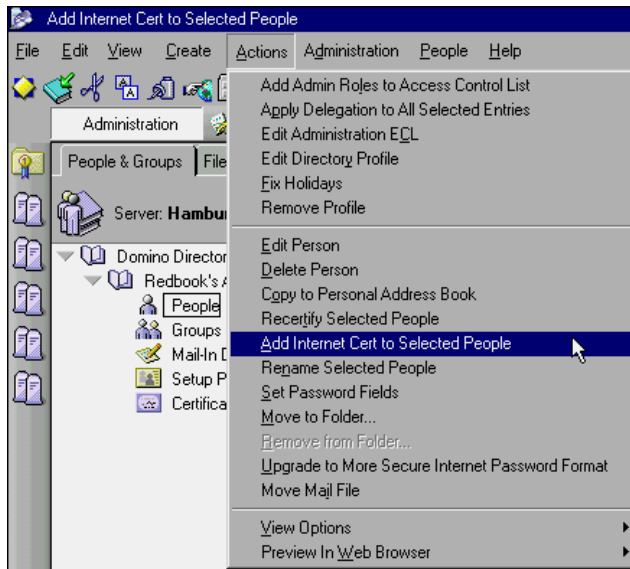
In addition, contact documents can be created which can contain that person's Notes and/or X.509 certificates. These certificates can be used to send encrypted mail to other users and to validate signatures on received mail.

With R5.0.2, you can now also export an X.509 certificate stored in your ID file. To import or export Internet certificates, choose File - Tools - User ID and click the More Options button.



On the server side, the Domino Directory is able to hold X.509 certificates. The Administrator client can generate and distribute X.509 certificates using the Domino Certificate Authority Application (cca50.ntf), the Domino Directory, and the administration process (AdminP). The Domino Certificate Authority Application is used to create your own certificate authority (CA). The process then encapsulates and recertifies the Notes certificate and creates the X.509 certificate. The two certificates share the same public and private key pair.

If you have a certificate authority (CA) registered in your Domino Directory, you can generate X.509 certificates to your users by selecting the desired users from the People & Groups tab and then choosing Actions - Add Internet Cert to Selected People.



By the use of the AdminP task, the certificate is added to the UserCertificate field of the Person document. When the user authenticates with their home server the next time, the certificate is added to their user ID file as well.

S/MIME in the Notes client

This feature is based on the X.509 certificates and the capabilities of the Notes client and Domino server to handle those certificates. Encrypted and signed mail can be sent over the Internet using S/MIME (Secure Multipurpose Internet Mail Extension). It offers the following benefits:

- Encryption for message privacy
- Tamper detection
- Signing — Authenticating sender with digital signatures
- Interoperability with other S/MIME-compliant software products
- Cross-platform messaging

S/MIME builds security on top of the MIME standard. Mail sent with S/MIME is encrypted with the public key of the recipient, which needs to be accessible for the client through the Domino Directory.

Signing mail is accomplished by using the private key of the sender. To verify a signature on the receiver's side, you would need access to the trusted root CA, or a cross-certificate to the recipient's certificate in your Personal Address Book or Domino Directory.

You can configure the Notes client to sign and/or encrypt messages you send. If the mail address is an Internet mail address or the message is in MIME format, then Notes will use the S/MIME keys. This is done seamlessly and transparently.

56-Bit encryption

Domino R5 now supports 56-bit encryption (or DES) for the international license. Previous releases were only allowed 40-bit encryption.

You can enable the 56-bit encryption by adding the following NOTES.INI parameter:

```
CRYPTO_VERSION = 5
```

VeriSign Global Server ID

Previous releases of Domino already supported the VeriSign Global Server ID, but it was limited to the HTTPS protocol. In Domino R5, the Global Server ID is now also used to secure data with SSL over NNTP, LDAP, IMAP, and POP3.

Domino automatically uses the 128-bit cipher of the Global Server ID when the requesting Web browser has SSL configured and supports the Global Server ID. The most commonly used browsers, such as Netscape and Internet Explorer, have the VeriSign root key embedded. Usually, only a 40-bit or 56-bit encryption can be used internationally without the Global Server ID.

Execution Control List

The Execution Control List (ECL) is a security feature known since R4.5. The ECL provides a mechanism to secure the Notes workstation against threats of e-mail bombs, viruses, Trojan horses, and unwanted application intrusions. The ECL functionality is based on digital signatures on design elements, code and mail. Since R4.5, every design element is signed by default with the signature of the developer or modifier.

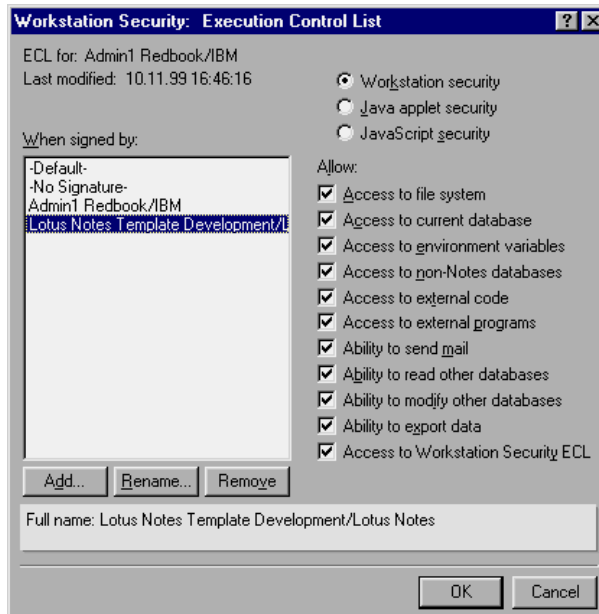
The ECL checks those signatures for everything that is executed on the client against very granular settings. The settings specify what certain signatures are allowed to do, as well as what they cannot do. There is also a default entry and an entry for elements not signed, such as applications prior to R4.5.

ECL code types

The ECL basically consists of three different code types:

- Workstation security
- Java applet security
- JavaScript security

Different settings apply for each of the three types, determining what the code is allowed to do on the workstation, and what is not allowed to do.



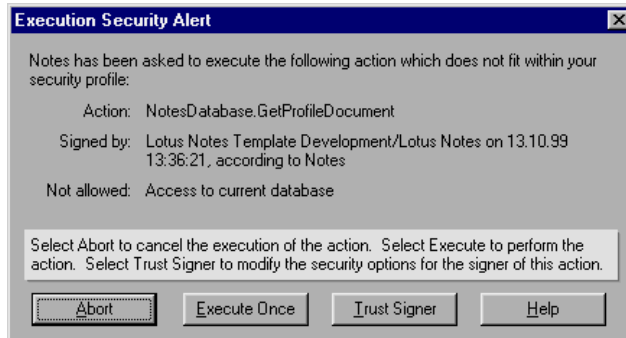
In the preceding figure, notice the signature entry “Lotus Notes Template Development/Lotus Notes.” This signature or ID is used by Lotus to sign every template and application that is provided with Domino and Notes. That way, every standard application has this signature and has all the rights in the workstation environment by default.

Verifying code execution

When an attempt is made to execute a piece of code, Notes verifies the digital signature on the code and then looks for the user’s ECL settings to determine whether the action can be executed or whether the user should be alerted that it cannot. If the signer of the code is found in the user’s ECL (either explicitly, as part of an organization such as */Lotus, or via -Default-) and the appropriate capability is enabled, the code is executed seamlessly.

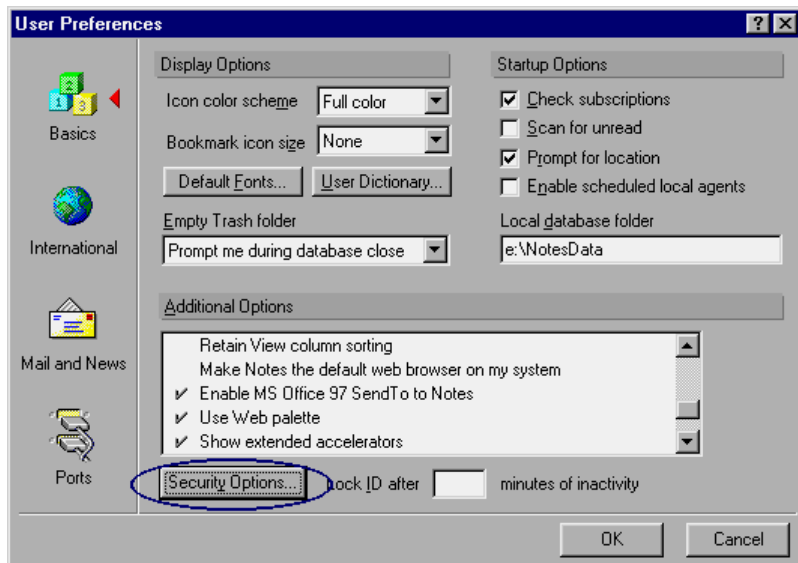
If the signer's name is not found in the ECL, or is found but the capability is not selected, the user will be prompted with a dialog box showing the Action to be performed, who signed it (and how the signature was verified), and the capability that is not allowed with the current ECL settings.

The user then has the following options: Abort, Execute Once, or Trust Signer. If the code is not signed, the -No Signature- entry for the client's ECL will be used to determine allowable capabilities.



Accessing the workstation ECL

You can access your local workstation ECL by choosing File - Preferences - User Preferences. Next, on the Basics tab, click the Security Options button, and the Workstation ECL will be displayed.



Adjustments can be made to the settings in the ECL, in addition to adding and removing signature entries.

Setting up the administration ECL

A default administration ECL is stored within the Domino Directory. When the Notes client is installed, it accesses the server and copies the administration ECL to be used as its local workstation ECL. If the server is unavailable, a default workstation ECL is created.

Prior to R5.02, the default settings were fairly open, to allow any local access even for -Default- and No Signature code. In R5.02, the standard definition is more restricted, which may result in more Execution Alert dialogs for the users when unauthorized code tries to access local data. This is done to enforce more local security on the workstation by default.

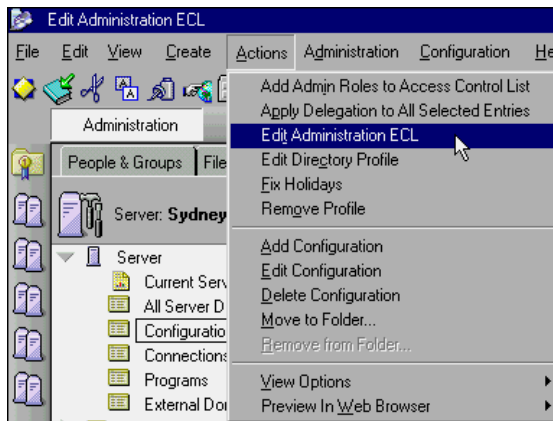
On existing R4 or R5 workstations, the changes will not have any effect, even when upgrading a server or client to 5.02. The ECL needs to be manually changed or pushed to the client for the latest features to take effect. The ECL is pulled automatically from the server only on new installations.

Defining an ECL policy

We strongly recommend that administrators define an ECL policy for their Notes environment. This includes the following:

- Initial definition of the administration ECL
- A process for bringing the ECL to the client
- Signing of internally used applications
- Thorough testing of the policies

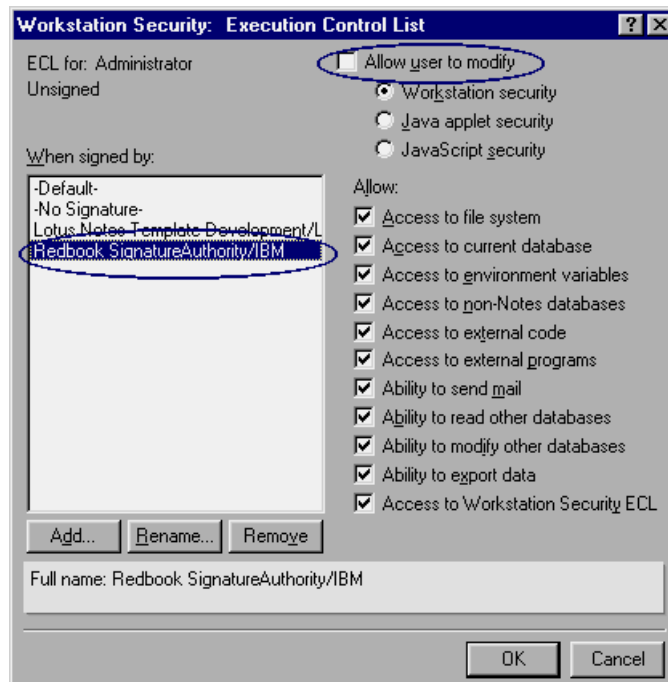
To define your own administration ECL, go to your Administrator client and select Actions - Edit Administration ECL (you need to be in a document from the Domino Directory for this action to appear).



You will see an ECL dialog that is very similar to the workstation ECL, with one difference. You can allow the end user to make changes to their local ECL once it is pushed to the clients, or prevent them from doing so. If you deselect the “Allow user to modify” field, end users will be able to view their ECL but not make any changes to it. To see what privilege the different @commands, @function, LotusScript, and Java commands need in the ECL, refer to the Domino R5 Designer online help.

Adding signature names to the ECL

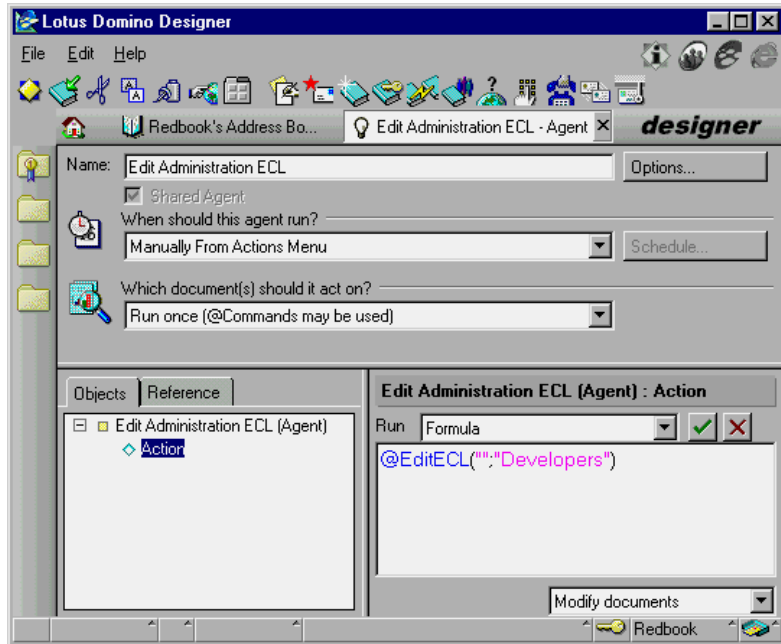
If you have decided on your signature policy, you can add any desired signature name to the ECL and configure the settings. This new signature must be added separately to all three of the security types. Notice that in our example, we have created a special ID file for signing databases called Redbook SignatureAuthority/IBM. Wildcard entries such as */IBM or */Development/IBM are allowed.



Distributing the ECL

To push the ECL to your users, you can send mail to each user with the formula `@RefreshECL(servername:directoryname;ECLname)`.

This action will create an unnamed ECL. If you need several different ECLs in your environment, such as particular ones for users, developers, and managers, you can specify different names for those ECLs. This cannot be done through the menu action. You need to either modify the corresponding agent in the Domino Directory or create your own action, using the function `@EditECL(servername:directoryname;ECLname)`.

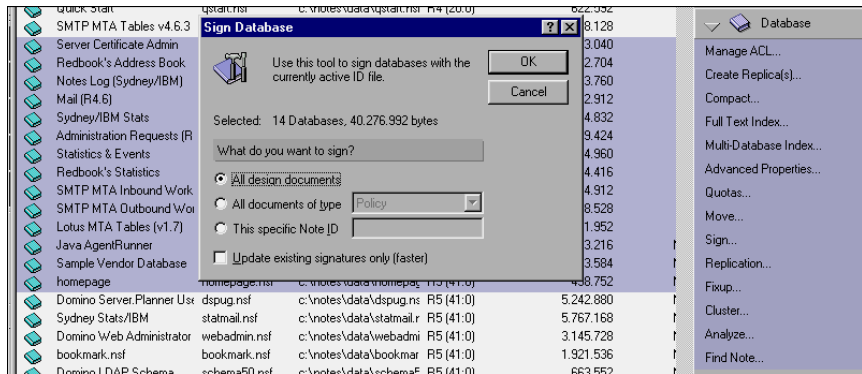


Signing databases

Along with ECL policies is the concern about signing your application databases. Design elements in a database are automatically signed when they are saved, with the signature of whoever saves it last.

In larger environments, an application deployment process is usually in place. It determines the procedure by which an application moves from development into production. A step should be included in this process that ensures the database is signed by a generic ID of your organization or an administrator's ID. This keeps different signatures (of third-party vendors or your internal development domain, for example), out of the production version.

The Administrator client provides a convenient signing tool. From the Files tab, select the desired databases, then select Tools - Database - Sign. You can sign the whole database, specific design elements, or a certain document based on the Notes ID. Be aware that the signature will be signed with your current user ID file. You need to switch IDs if you have a dedicated signing ID.

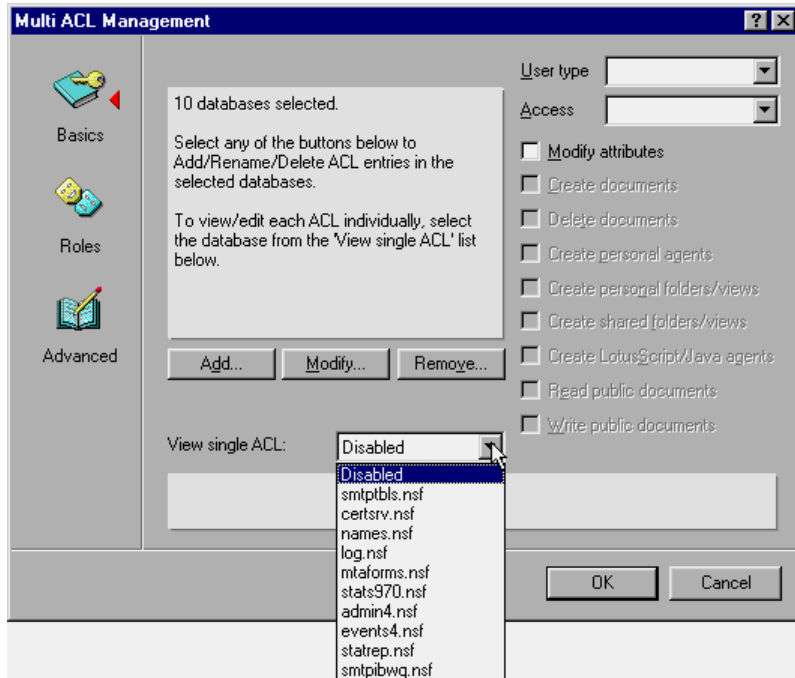


ACL management

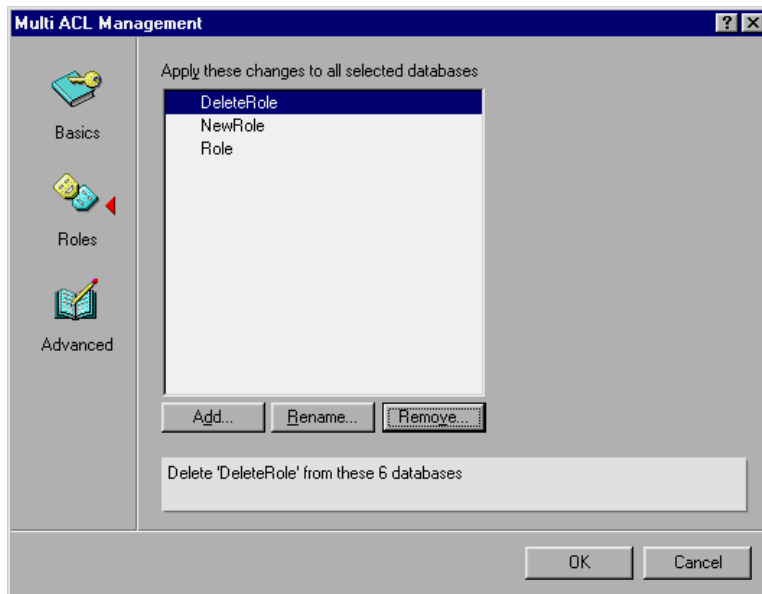
The Administrator client provides a new tool for Access Control List (ACL) management. Click the Files tab and select Tools - Database - Manage ACL. This tool enables you to accomplish the following tasks:

- Add, modify or delete ACL entries
- View the ACLs of selected databases
- Edit multiple ACLs at once
- Add, rename, and remove roles
- Modify the Administration Server setting
- Modify the Consistent ACL setting
- Modify the Internet name and password setting

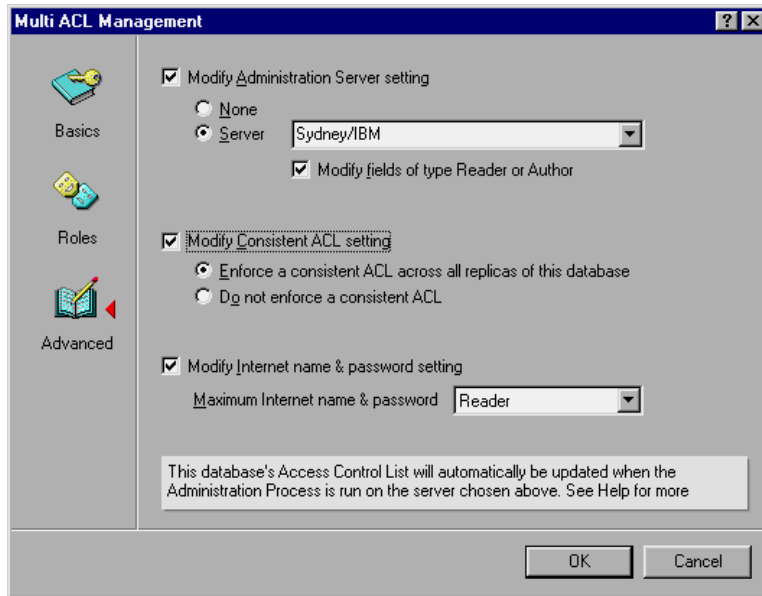
The dialog box for multi-ACL management looks like this:



The dialog box for adding, renaming, and removing roles looks like this:



The dialog box for modifying the Administration Server setting, the Consistent ACL setting, and the Internet name and password setting looks like this:



When you issue the ACL management tool on a single database, the regular ACL dialog is displayed.

Note Once you have specified a new or modified entry, it cannot be changed again within the dialog. You need to exit and reopen the dialog to change any of the entries.

Authenticating Web clients via LDAP

With Domino R5, you can use LDAP directories, in addition to Domino directories, to authenticate Web clients accessing a Domino server. Authentication by Domino occurs when the client cannot access server data anonymously and it is necessary to log on.

If you want to use authentication through LDAP directories, you need to create a Directory Assistance database using the Directory Assistance template (DA50.NTF), or replace the design in the Master Address Book using the Directory Assistance template.

When you mark the domain as trusted, Domino searches the primary address book for the user name and password, and if Domino cannot find the user name and password, it searches the secondary address books and LDAP directories for the trusted domains. You specify the order in which to search the trusted domains when you set up Directory Assistance.

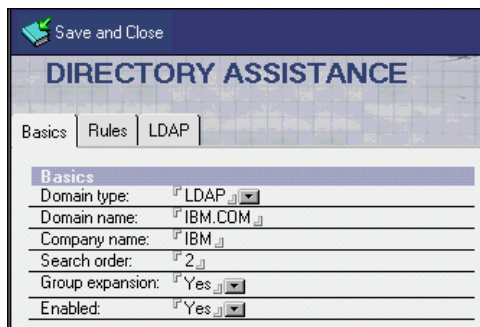
The hierarchical name returned by the secondary address book or LDAP directory is checked against the trusted rule in the Directory Assistance database to make sure the organization and organizational units match the specified rule. For example, if the user name returned is Admin1 Redbook/IBM, then the Directory Assistance document must include */IBM.

In previous releases, Domino authenticated Web clients using only the primary Domino directory and secondary Domino directories if the Trusted field was selected in the directory assistance document.

How to set up Directory Assistance

The basic steps of setting this up are as follows:

1. Open Directory Assistance and click Add Directory Assistance.
2. Enter the appropriate information on the Basics tab:
 - Domain type: LDAP
 - Domain name: A unique domain name
 - Search order: Number for order in Directory Assistance
 - Group expansion: Choose Yes, if you use groups for Web users in your ACLs
 - Enabled: Yes



The screenshot shows the 'Directory Assistance' dialog box with the 'Basics' tab selected. The 'Basics' section contains the following fields:

Basics	
Domain type:	LDAP
Domain name:	IBM.COM
Company name:	IBM
Search order:	2
Group expansion:	Yes
Enabled:	Yes

3. On the Rules tab, be sure to select Yes in the Trusted for Credentials column.

Save and Close

DIRECTORY ASSISTANCE

Basics | Rules | LDAP

- Use the first rule to configure the Base for this LDAP server (4.6x Servers only)

Rules	OrgUnit4	OrgUnit3	OrgUnit2	OrgUnit1	Organization	Country	Enabled	Trusted for Credentials
Rule1:	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>
Rule2:	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
Rule3:	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
Rule4:	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
Rule5:	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="*/"/>	<input type="text" value="No"/>	<input type="text" value="No"/>

4. On the LDAP tab, specify the following information:
 - Hostname: IP or DNS name of your LDAP server
 - Base DN for search: Might be required for some LDAP directories; in our example, we had to use ou=Bluepages, o=IBM.com
 - Perform LDAP search for: Select Notes Clients/Web Authentication
 - Channel encryption: SSL is recommended, if your server supports that port; we disabled it.
 - Port: 389 (636 with SSL)
 - Timeout: 60 seconds
 - Maximum number of entries returned: Depends on your LDAP server: we had to tune it down because of error messages.

Save and Close

DIRECTORY ASSISTANCE

Basics | Rules | LDAP

LDAP Configuration

Hostname:	<input type="text" value="ldap.bluepages.webahead.ibm.com"/>
Base DN for search:	<input type="text" value="ou=Bluepages,o=IBM.com"/>
Perform LDAP search for:	<input checked="" type="checkbox"/> Notes Clients/Web Authentication <input checked="" type="checkbox"/> LDAP clients
Channel encryption:	<input type="text" value="SSL"/>
Port:	<input type="text" value="636"/>
Accept expired SSL certificates:	<input type="text" value="Yes"/>
SSL protocol version:	<input type="text" value="Negotiated"/>
Verify server name with remote server's certificate:	<input type="text" value="Enabled"/>
Timeout:	<input type="text" value="60"/> seconds
Maximum number of entries returned:	<input type="text" value="5"/>

5. Save and close the document.
6. On the Basics tab of your Server document, specify the Directory Assistance database in the “Directory Assistance database name” field.

The screenshot shows the 'SERVER: Sydney/IBM' configuration window. The 'Basics' tab is selected. The 'Directory Assistance database name' field is highlighted with a red rectangle. The field contains the value 'dirassist.nsf'.

Basics	
Server name:	Sydney/IBM
Server title:	
Domain name:	Redbook
Fully qualified Internet host name:	redbook1.sl.dfw.ibm.com
Cluster name:	RedCluster
Directory Assistance database name:	dirassist.nsf
Directory Catalog database name on this server:	
Optimize HTTP performance based on the following primary activity:	Advanced (Custom Settings)
Server Location Information	

7. Include the Web user names from the LDAP directory in the desired database ACLs. The syntax for the names needs to be distinguished using a forward slash for delimiters, such as oid=Admin1 Redbook/O=IBM.

Summary

The R5 Domino server and Notes client are both enhanced to make the use of secure mailing and Internet connections more convenient. X.509 certificates can be seamlessly integrated within the Notes ID file and the Domino Directory. A PKI infrastructure can be established.

The Execution Control List (ECL) is not a new function with Domino R5, but due to changes to default settings in R5.02, it will be more strongly enforced. Establishing policies for workstation security that include the ECL can be an important element within your overall system security.

The Administrator client provides an ACL tool to make management of multiple databases faster and easier.

Chapter 12

System databases

This chapter covers a number of the system databases central to the Domino server, as well as new features available for implementation. The chapter describes areas of consideration when upgrading Domino system databases and methods of implementation of new features. It includes a discussion of the following topics:

- Administration processing in Admin4.nsf
- Resource reservations
- Implementing domain search
- Domino and Domain Name Service (DNS)
- Decommissioning servers
- Server.Planner
- Sametime
- The Database Properties box
- Subscriptions
- Application properties
- System databases overview
- Summary

Administration processing in Admin4.nsf

The automation of simple administration tasks can make the life of an administrator easier. The Administration Requests database in Domino R5 has been improved to increase the number of functions it can perform, as well as to allow administrators the ability to use add-in APIs to write their own functions for the Admin4.nsf database to process.

When upgrading an existing Domino R4.x server to Domino R5, you will find that the Administration Requests database (Admin4.nsf) does not get automatically upgraded right away. If you have the Design task set to run in the NOTES.INI file, Admin4.nsf will be updated at the time Design runs.

You can upgrade the design of the database as soon as you upgrade the server to R5 by choosing File - Database - Replace Design. One of the first tasks Admin4.nsf performs when the server is upgraded is to add port information to the Server document in the Domino directory.

The Domino R5 design of Admin4.nsf can run on any Domino R4.x server, but a Domino R4.x server will not process any new R5 requests. If you will be using the Domino R5 Admin4.nsf design in a mixed environment, ensure that your Administration server in your domain is at Domino R5 code level.

The rest of this section describes the R5 enhancements to the Admin4.nsf database.

New views in the Administration Requests database

There are three new views included in the Domino R5 Admin4.nsf database:

- Administrative attention required
- Cross-domain delivery failures
- Cross-domain configuration

The administrative attention required view contains all administration requests that require troubleshooting or reprocessing.

These views can be accessed from the Analysis tab in the Administration client.

Cross-domain processing


In Domino R5, you can process the following requests between domains using Admin4.nsf:

- Create replica
- Delete person
- Delete server
- Rename person
- Rename server from flat to hierarchical

To set up cross-domain processing

Follow these steps to set up cross-domain processing:

1. Edit the Directory Profile in the Domino directory, and enter the names of administrators who will be creating cross-domain requests in the “List of administrators who are allowed to create Cross Domain Request Configuration documents in the Administration Process Requests database” field.
2. Create an inbound and outbound Cross Domain Request Configuration document in the Admin4.nsf database. It looks like this:



CROSS DOMAIN REQUEST CONFIGURATION	
Configuration Type	Outbound Request Configuration
Domains to submit AdminP requests to:	<input type="text"/>
List of AdminP requests to submit:	<input type="text"/>
List of approved signers:	<input type="text"/>

Important Ensure that the two domains have cross certificates and certifiers in both address books.

For a complete listing of cross-domain tasks, see Appendix D in the product documentation *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

New administration requests for updating the Server document

Domino R5 includes five new administration requests that update fields within the Server document. These requests are generated by the server when it determines that the fields are blank or incorrect. They are generally created by the server when the server is created or updated. They can also be created when information changes.

Store server platform in Server record

Updates the platform information in the “Operating System” field on the Basics tab in the Server document.

Update domain catalog configuration

Updates the Domain Indexer server in the LocalDomainCatalogServer group when the server is designated as a domain indexer server.

Update server protocol information

Updates the current protocol in the “Protocol” field in the Notes Network Ports section on the Ports tab in the Server document.

Store server DNS host name

Updates the servers DNS host name in the “Fully qualified Internet host name” field on the Basics tab in the Server document.

Request to store server CPU count

Updates the number of processors in the “CPU count” field on the Basics tab in the Server document. On a partitioned server, this displays the full number of CPUs available on the server, on both partitioned server documents.

Additional functions

The following sections describe additional functions relating to the administration process.

Moving mail files

The administration process automatically performs the steps to create a new mail file and remove the existing one. This request can be created by either dragging and dropping the selected mail file from one server to the new server, by selecting a person document and choosing Actions - Move Mail File, or by clicking the Move Mail File button.

To ensure that mail does not bounce while the Domino Directory is being updated, force administration requests to process with the console command `tell adminp process all` and replicate the Domino Directory between the two servers.

Note Updates to the Location document of the user are only updated when the user accesses the server copy of their mail file.

Any agents or replication formulas that have the old server name specified are noted in the Administration Process Log for the request. They are not automatically changed to the new server and must be manually changed by the administrator.

The administrator will also need to approve the deletion of the original mail file in Admin4.nsf before this is removed.

Delegating mail files

Delegation requests by users to allow other users access their mail file are processed through adminp. When users modify the Delegation Preferences of their mail field, a “delegate mail file administration request” is created.

This feature allows administrators to change the user’s access to their mail file to either Editor or Designer, preventing the user from accidentally deleting their mail file from the server. Designer access is required to enable the out-of-office agent.

Rename in unread lists

Unread lists are created when you access a database and do not open every document in the database. Any unopened document is added to the user’s unread list.

The “Rename in unread lists request” is a secondary request that is created after the “Rename person administration” request is processed. This request checks all databases on a server and substitutes a user’s name in any unread lists that it finds for the old name.

Delete private design elements

Private design elements are design elements, such as folders, views and agents, that a user creates within a database.

When you delete a user, the selection of delete “Reader/Author fields” locates any private design elements created by the deleted user on server copies of databases and removes them.

The administration request generates an “approve deletion of private design elements” request, which needs to be approved by the administrator. This triggers two more requests that, when completed, remove private design elements from the servers where they existed for that user.

Deleted persons added to a Termination group

When deleting a person in the Administration client, the Delete User Options dialog box appears. You can add the name of the Terminations group to the field, which will then add that user’s name to the Terminations group, denying them access to the server.

Ability to add Third-Party Extensions

Administrators can expand the use of the Administration process using the following:

- Extension Manager, to specify routines to be called before and after the execution of an administration request
- Alternative Administration Requests, to compose and process administration requests that are not standard administration requests with APIs.

For more information on Domino Administration Requests, see the article “Up-To-Date with the Domino R5 Administration Process” at <http://www.notes.net/today.nsf>, and the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Resource reservations

In the R4 design, the mailing of reservation acceptances or declines by the router is invoked after the AutoProcessReservations agent runs successfully. In the R5 Resource Reservations database, there is an internal flag set in the database design to invoke or call the router once a reservation has been deposited into the database.

Upgrading the Resource Reservations database to R5

There is a two-step process to upgrading the Resource Reservations database for Domino R5.

1. Manually replace the design of the Resource Reservations database with the resource reservations (5.0) template resrc50.ntf.
2. After replacing the design, choose Actions - Upgrade from within the Resource Reservation database. This sets the Resource Reservation database to enable the router to send acceptances or declines. Choosing Actions - Upgrade does not visually display any messages that the database has been upgraded.

Note If you do not choose Actions - Upgrade, your users will not receive any acceptances or declines when they reserve rooms. The requests will still be unprocessed in the \$NLookup view in the Resource Reservations database.

If any reservations remain present in the \$NLookup view, do either of the following:

1. Choose Actions - Send Document and then manually delete the document, or
2. Create an action button with @MailSend to release the reservations and then delete them from the view.

Tip You can also use @DeleteDocument in the button, so the button would contain @MailSend; @DeleteDocument.

Coexistence issues

During your coexistence phase, when you have a mixed server and a mostly R4 client environment, you should *not* upgrade the design of the Resource Reservations database. R4.5x/4.6x users cannot reserve rooms or resources directly in the R5 Resource Reservations database. This database contains new script libraries that the R4.5x/4.6x clients cannot use. Wait until all the clients are upgraded to R5. We recommend that when planning your upgrade project, you schedule the upgrade of resource reservations with the upgrade of the mail template to R5.

New template features

Some of the new features in the R5 Resource Reservations database template include the following:

- Restrictions for rooms and resources:
 - None.
All users can book the resource/room.
 - Only the owner can book the resource.
Everyone must go through the owner of a resource/room for approval (Note: Only one owner per resource is allowed).
 - Only a select list of people can book the resource.
No one but the listed users can book the resource/room. All others are declined.
 - Only a select list of people can book the resource via autoprocessing — all others require owner approval.
No one but the selected users can book the resource/room. All others must go through approval of the listed owner to book the resource/room (only one owner allowed per resource/room).
 - Temporarily disable reservations.
Removes resources/rooms from being reserved (Chairperson is notified via e-mail that the resource/room is removed).
- The ability to create repeat reservations directly in the database.

New databases created with the Resource Reservations (R5) template are set to deliver acceptances and declines from the router. They do not require any manual intervention.

Implementing domain search

The following sections describe aspects relating to the implementation of domain search.


Database catalog

When upgrading from Domino R4.x to Domino R5, the database catalog is upgraded automatically using the catalog.ntf template. As in R4.x, the database catalog is still a replica on all servers, but by default it allows only Reader access to the LocalDomainServers group. This prevents the database catalog from replicating between Domino R5 servers within the domain, growing to a large size and taking up unnecessary disk space on each server.

The Domino R5 catalog contains the following information about each database:

- Title
- The server it is on
- File name
- Size (n bytes)
- Full ACL
- Replica ID
- Percentage used
- Creation data
- Number of documents
- Whether or not it is full-text indexed
- Whether or not it should be part of the multi-database index, or domain index
- Information from the Database Properties box

A typical database entry document looks like this:

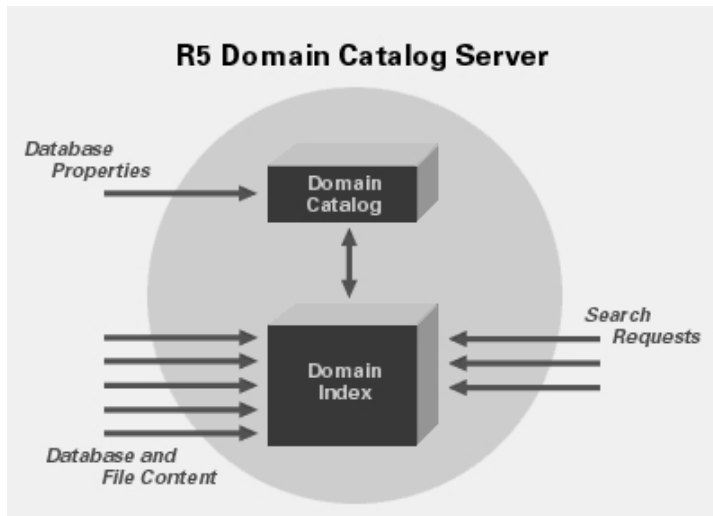
DATABASE ENTRY	
Database	Replication
Full Text	Access Control List
General Database Information	
Database title:	Administration Requests (R4)
Database server:	d23m0203/23/M/IBM
Database filename:	admin4.nsf
Database type:	0
Replica ID:	CA256783:0027FC79
Database Admin Server:	
Database size:	1,048,576
Database percent used:	91.9189453125
Database creation date:	01/06/99 01:16
Database last modified date:	26/11/99 01:23
Link to database Policy document:	
Number of documents:	120
Database Design Template Information	
Design template name:	
Template to inherit design from:	StdR4AdminRequests
Design last modified date:	29/11/99 12:27
Miscellaneous Database Information	
List in Database Catalog:	Yes
Database catalog category:	NCO Notes Admin
Include in Multi-Database indexing:	No
Show database in Open Database Dialog:	Yes
Database Activity	
Database Activity summary:	<ul style="list-style-type: none"> - Number of uses in previous 24 hours - Number of reads in previous 24 hours - Number of writes in previous 24 hours - Number of uses in previous week - Number of reads in previous week - Number of writes in previous week - Number of uses in previous month - Number of reads in previous month - Number of writes in previous month - Number of days in reporting period - Number of uses in reporting period

Domain catalog

Domino R5 uses a domain catalog to collect information from each Domino R5 server in a domain. If you specify a server as a domain catalog server, the administration process will put that server into the group called LocalDomainCatalogServers group, which has sufficient access to allow replication between itself and any existing database catalogs on other servers within the domain.

You specify that a server is a domain catalog server by running the domain indexer task on that server. The next section describes how to do this. The domain catalog uses the same template as the database catalog — catalog.ntf.

When the catalog server task runs on a domain catalog server, it collects information from each of the databases resident on that server, as it would normally for a database catalog. It then searches the Domino directory for listed servers and attempts to contact them. If it finds a database catalog on the server it is able to connect to, it will issue a pull replication request to their database catalogs. If it does not, it will manually collect information required on each of the databases on that server.



Tip As it is quicker for the domain catalog to pull information from each database catalog rather than manually collecting information, it is recommended that you set up a database catalog on each Domino server (and schedule the catalog task to run daily via ServerTasksAtX=Catalog, where X is a number).

In a mixed Domino R5 and Domino R4.x environment, the domain catalog server will manually pull information from a Domino R4.x server, whether a database catalog exists on the server or not.

A server can have either a domain catalog or a database catalog, but not both. Therefore, the server designated as the domain catalog server will still have a database called catalog.nsf.

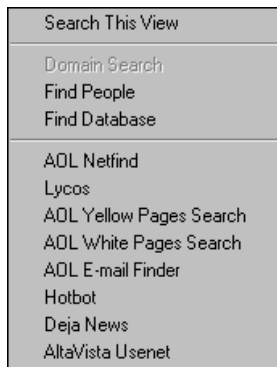
You can have more than one domain catalog server in your domain. For small domains, you may find that you can run domain catalog and search on a server that is also serving another purpose. If you have more than eight servers within your domain, you should dedicate a server to domain catalog and search. When the user load becomes too great for the initial domain catalog, you can set up a second domain catalog. The two domain catalogs will replicate together, and will perform separate searches to create their own indexes individually. You can also cluster domain catalogs for load balancing and failover.

To obtain recommendations for hardware configurations for a domain catalog server, see the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Domain index

In Domino R5, the domain catalog server runs the domain indexer task. Both the catalog server task and the Domidx server task will run on a domain catalog server.

The domain index is used by domain search when the Notes client or Web client initiates a search through the Discovery icon at the top right-hand side of the Notes client. Search results are filtered based on the access rights of the client.



For more information on domain searching in the Notes client, see Chapter 19, “Using new R5 features.”

Specifying a server as a domain catalog server

To specify a server as a domain catalog server, update the domain indexer section of the chosen server. Select the Server Tasks - Domain Indexer tab of the Server document. Enable “Domain wide indexer” and “Schedule,” as shown in the following figure:

The screenshot shows the Domino Server document configuration for the Domain Indexer. The tabs at the top are Basics, Security, Ports, Server Tasks, and Internet Protocols. The sub-tabs under Server Tasks are Administration Process, Agent Manager, and Domain Indexer. The Domain Indexer sub-tab is selected. The configuration is divided into two sections: Basics and Schedule. In the Basics section, the Domain wide indexer is set to Enabled. In the Schedule section, the Schedule is set to ENABLED, the Run Catalog Indexer is set to 00:01 - 23:59 each day, the Repeat interval of is set to 60 minutes, the Days of week is set to Sun, Mon, Tue, Wed, Thu, Fri, Sat, and the Limit domain wide indexing to the following servers is set to an empty list.

Basics	
Domain wide indexer:	<input checked="" type="checkbox"/> Enabled

Schedule	
Schedule:	<input checked="" type="checkbox"/> ENABLED
Run Catalog Indexer:	<input checked="" type="checkbox"/> 00:01 - 23:59 each day
Repeat interval of:	<input checked="" type="checkbox"/> 60 minutes
Days of week:	<input checked="" type="checkbox"/> Sun, Mon, Tue, Wed, Thu, Fri, Sat
Limit domain wide indexing to the following servers:	<input type="checkbox"/>

Running the domain indexer

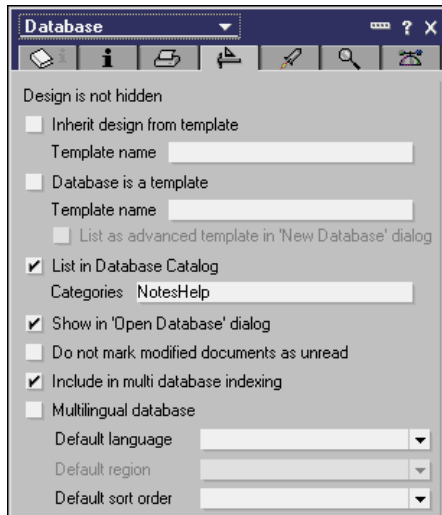
You can initially force the indexer to run by loading catalog on the remote server console, which launches the domain indexer task. You can also load the domain indexer task via the server console command `load domidx`.

Domain indexing uses two indexing threads per processor. You can increase this with the NOTES.INI parameter `FT_DOMAIN_IDXTHDS=x`, where `x` is a number. Do not exceed eight threads per server, as this will decrease indexing performance. It is recommended that you only increase this from the default if the domain indexer exists on its own dedicated server.

Excluding a database from the database catalog

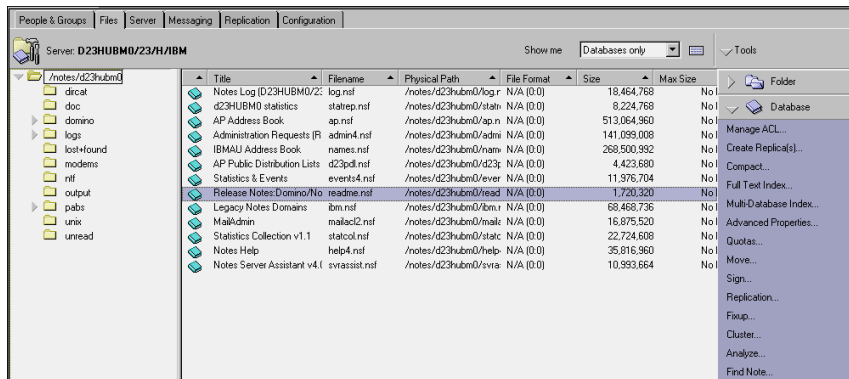
A database must be present in the database catalog in order for it to be available for domain index. By default, all databases are present in the database catalog except for mail databases in Domino R5.

To exclude a database from the database catalog, deselect the database property “List in Database Catalog” for that database. It is not necessary to set a category, however; if categories are specified; it allows the user is allowed to limit their search to specified categories.



Including a database in the domain index

To include a database in the domain index, select the “Include in multi database indexing” option in the database properties. Alternatively, you can select multiple databases in the Notes Administrator client in database tools, on the right-hand side under the Files tab.



In addition to standard Domino databases that exist on your servers, you can also include File Systems from File servers, Web pages, and other databases that you access through Domino Enterprise Connection Services (DECS).

To add additional resources to the domain index for client searches, create a File System document in the domain catalog. When you click the Set/Modify File System List, the File System dialog box will open; here you can list file systems which are mapped to the server, or Web pages to index via a URL. To index a file system, the Domino server must have Read access to it.

Important To index file systems, the domain catalog server must have the HTTP service running on the Domino server.

The screenshot shows the 'FILE SYSTEM' dialog box in Lotus Notes. The dialog is divided into a sidebar and a main content area. The sidebar has a 'File Systems' tab selected. Under this tab, there are two sections: 'Basics' and 'File Systems to Index'. The 'Basics' section contains a 'Server name to index files on:' field. The 'File Systems to Index' section contains a 'Current file system list:', a 'Deleted file system list:', and a 'Last file system set by:' field. Below these fields is a 'Set/Modify File System List' button. The main content area has a large empty text box at the top. Below it, there's a 'File system:' label followed by a text box and a 'Next' button. Below that, there's a checkbox labeled 'Recurse subdirectories' which is checked. Below the checkbox, there's a 'Directory or URL:' label followed by a text box and a 'Clear' button. At the bottom, there's a note: 'NOTE: Directories are relative to the Domino data directory on the server'. There are 'OK' and 'Cancel' buttons in the top right corner.

Supported file formats

Domain indexing supports the following file formats:

- Adobe PDF — Win32, UNIX
- Corel WordPerfect — Win32, UNIX
- Ichartar — All platforms
- Lotus 1-2-3 — Win32, UNIX
- Lotus FreeLance — Win32, UNIX
- Microsoft Excel — Win32, UNIX
- Microsoft PowerPoint — Win32, UNIX
- Microsoft Word — Win32, UNIX
- WordPro — Win32, UNIX
- Web pages

Caution As the security filtering in R5 works only for results from Domino databases, users may be able to discern confidential data from search results of file systems. Users will get a result even if they are not authorized to view the document. They will not be able to open these documents, however; they will only be able to open index file systems where security is not a high priority.

More information on domain search is on the Web at

<http://www.notes.net/today.nsf> and in the product documentation

Administering the Domino System, Volume 1, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Geographic routing

Geographic routing is the ability to automatically access other replicas that exist in an organization. Geographic routing is available to Domino R5 clients only and is transparent to the client.

Geographic routing is an extension of the domain catalog. It requires at least two replicas of a database on servers in the Domino domain which exist in the Domain Catalog. Geographic routing is not clustering; the databases only need to be replicas, not clustered.

If the client tries to access the initial replica and the server is down, the client receives this information, looks up the domain catalog for a list of replicas, and checks the availability of servers in the list. The client will then try to connect to the first server in the list.

The following table compares the functionality of geographic routing to Domino clustering:

<i>Geographic routing</i>	<i>Clustering</i>
Replicas use scheduled replication	Cluster replicas use event-driven cluster replication for synchronization
Uses either communication latency or server availability index for prioritization of servers	Uses server availability index for prioritization of server availability
There is no load balancing	Uses server availability threshold for load balancing

Domino and Domain Name Service (DNS)

When a Notes client accesses a Notes database on a Domino server for the first time, the client stores the Net Address reference for that server from the Notes Name Service (NNS) offering in the Personal Address Book (PAB). It then places this in the Notes Name Service Cache (NNSC). The NNSC consists of hidden fields in the user's PAB Location document.

There are three hidden fields in R4.x PAB-based clients:

- \$\$SavedPorts
- \$\$SavedAddresses
- \$\$SavedServers

In Domino R5, there are five hidden fields. The additional two are as follows:

- \$\$SavedDate
- \$\$SavedTriedDate

In Domino R4.x, there were three methods of resolving server names and IP addresses in Lotus Domino:

- Simple IP host naming
- Fully qualified domain names
- Numeric IP addresses

Simple IP host name

The host name is usually the Domino server name in the domain where it exists. For example, Sydney/Redbook/IBM would have a common name of “Sydney” which the Domino server would resolve to sydney.ibm.com. If the host name is different, the IP name service (such as the host name or DNS) requires an alias, or CNAME record. The CNAME allows the Notes client to locate the Domino server by its alias host name, which is populated in the Net Address field for the given Notes TCP port.

Fully qualified domain names

Fully qualified domain names (FQDN) are sometimes required when there are multiple domain services that have the same host names representing different systems. For example, there might be two servers called “Sydney,” one with an FQDN of sydney.ibm.com and the other of sydney.lotus.com. A workstation in the “x.ibm.com” domain would resolve sydney to the sydney.ibm.com server.

Numeric IP addresses

In Notes R3 and R4, some Domino networks used numeric IP addresses in the Server documents. Using IP addresses completely bypasses the protocol name service.

Caution The use of numeric IP addresses should be avoided in the Domino Server address book.

The `$$SavedAddresses` field caches a reference for servers resolved by the client. If the targeted server has its IP address changed, the client will reference the IP address already cached.

Tip You can clear the cache by using the `NOTES.INI` parameter `Dont_use_remembered_addresses=1`

Important Remove this entry after you restart the Notes client so that you do not clear the cache again for further client restarts.

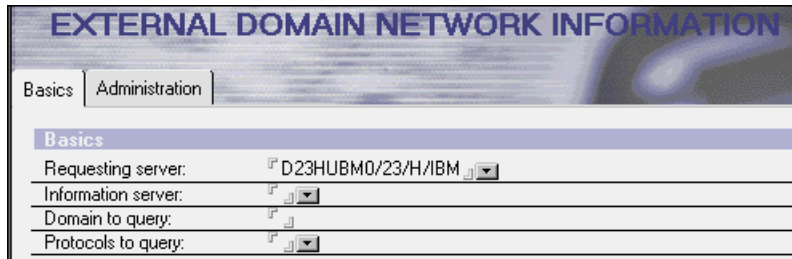
Another way to clear the cache of the `$$SavedAddresses` field is to create a new Location document.

Name service access

In Domino R5, the server can collect information from a DNS and store it for the client to use. This allows the client to request connection to a server outside the local IP domain by using connection information.

A local domain server connects to a remote server via TCP (DNS) and stores the address. The client can then cache the server/host name and related IP address in its routing table.

To set this up, create an External Domain Network document by selecting the Server - External Domain Network Information view in the Configuration tab of the Domino Directory. It looks like this:



EXTERNAL DOMAIN NETWORK INFORMATION	
Basics Administration	
Basics	
Requesting server:	D23HUBM0/23/H/IBM
Information server:	
Domain to query:	
Protocols to query:	

The server task “getadr” must run on the server that is obtaining External Domain Network Information.

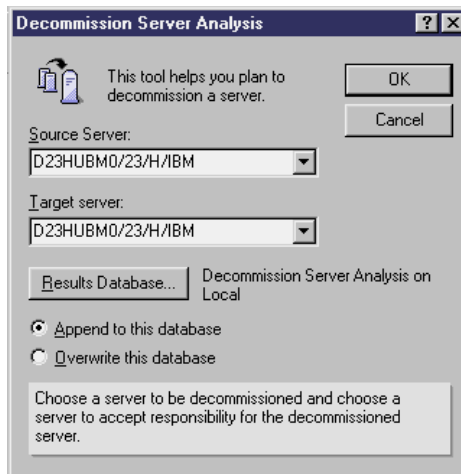
For more information on Name Service Access, refer to the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Decommissioning servers

The Decommission Server tool is a new feature in Domino R5 that allows a comparative analysis of a server that is identified for decommission, and the server that will take over the tasks it is currently performing.

The comparison is presented as a report in the decommission server (decomsrv.nsf) database. This report can then be used to produce a checklist of action items to complete before removing the server from production. This will prevent any loss of service.

The decommission server tool is available through the Domino R5 Administrator client under the Server - Analysis tab. On the right-hand side of the screen, select the Analyze drop-down list, then the Decommission Server tool. When you click Decommission server, you are prompted to provide the target and source servers.



The Source Server is the server that will be decommissioned. The Target Server is the server that will take on the responsibilities currently carried out by the server to be decommissioned.

The Decommission Server task is fully compatible with Domino R4.x. Both the source and target servers can be Domino R4.x servers. Decommission Server is only available from a Domino R5 Administration client. The Results database can be viewed from either the Domino R5 Administration client or the Notes client.

The Decommission Server tool will create the decommission server database from the decomp.srv.ntf template, either locally on the administrator's workstation or on a specified server. The default is Local; to change this, click the Results Database button and enter the name of the desired target server. If the database is to be created on a server, the decomp.srv.ntf template must be present on that server.

The Decommission Server report will take approximately five minutes to create. It can be appended to existing reports in the database, or it can overwrite all reports in the database.

The report provides an overview of all server documents, databases, and server tasks that the two servers run, as well as a detailed analysis of the differences between the two servers. Differences are marked by a red X.

The Decommission Server report is not all-encompassing. It does not do comparisons between the items that it finds. For example, it may find that some databases do not have replicas on each server, but it does not compare whether the file names of the databases would conflict if you did make replicas. It does give the Domino administrator a head start in the process of decommissioning a Domino R5 server, however.

Server.Planner

Server.Planner and Server.Load are Domino R5 tools that help you to calculate capacity and load constraints on a variety of hardware and operating system platforms.

Three databases are provided in Domino R5 for server planning. They are identified in the following table:

<i>Database name</i>	<i>Template name</i>	<i>Description</i>
Server.Planner: Analyst	DSPA.NTF	Stores completed Server.Planner queries and the results associated with those queries.
Server.Planner: Decision Maker	DSPD.NTF	Stores information resulting from the Server.Planner Analyst Query, including recommended configurations.
Server.Planner: Vendor	DSPV.NTF	Stores machine configuration information and performance results from NotesBench workloads.

Server.Planner Vendor is for manufacturers of hardware to benchmark Notes behaviors on their servers using predetermined NotesBench workloads. Vendors also use Server.Planner to define machine configurations in a format designed to be useful for analysis and decision makers. They select appropriate workloads, system configurations and operating conditions for collecting valid performance data.

For more information on NotesBench, see the NotesBench consortium Web site at <http://www.notesbench.org/>

Server.Planner Analyst is used by administrators and analysts to calculate capacity thresholds using capacity data as a base, query the vendor database for systems that best meet the requirements of their environment, and report results to the Decision Maker database in a document that can be saved for future comparison or forwarded to other planning personnel and administrators.

Server.Planner Decision Maker is for planners, who can use this database to review stored vendor data in the Server.Planner Vendor database, query the results, complete graphical analyses, and identify machine configurations.

For more information on running Server.Planner in your environment, see the Domino Server Planner Use Guide (dspug.nsf) database, and the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

Information about Server.Planner and Server.Load is also available on the Web at <http://www.lotus.com/performance>

Sametime

Sametime 1.5, which is the latest currently available version, is supported in a mixed R4/R5 environment, but is not designed to run on a Domino R5 server. Included below are excerpts from the Sametime 1.5 Release Notes. All Sametime documentation can be accessed on the Web at <http://www.notes.net/doc>. A future release of Sametime will run on Domino R5.

Installing Sametime in a Domino R5 environment

You can install Sametime 1.5 on a dedicated server in a Domino R5 environment. You cannot install Sametime 1.5 on the same computer as a Domino R5 server.

To install Sametime on a dedicated server in a Domino environment, follow the instructions in the “Installing the Sametime server on a dedicated server in a Domino domain” section of the *Sametime Installation Guide*. Note the following when installing the Sametime server:

- When installing Sametime on a dedicated server in a Domino R5 environment, you must register the Sametime server from a Domino R5 server.
- During the installation, the Address Book is pulled from the Domino R5 server to the Sametime server. If the Address Book is pulled from a Domino R5.0 or R5.0a server, you must refresh the design of the Address Book on the Sametime server, as described in the *Sametime Installation Guide*. If the Address Book is pulled from a Domino R5.0.1 server, it is not necessary to refresh the design of the Address Book on the Sametime server.
- Use the C:\NOTES\STData\PUBNAMES.NTF template on the Sametime server to refresh the design of the Address Book on the Sametime server. If you refresh the design of the Address Book, it is important that the Address Book is not replicated from the Sametime server to the Domino R5 servers in the domain. Also, if you were using a customized Address Book on the Domino servers, you must restore the customization to the refreshed Address Book on the Sametime server.

Note For related information, see “Installing Sametime on a Domino server — Domino versions supported” in the Troubleshooting — Installation Issues section of the Release Notes.

Interoperability issues in Domino environments

Various software must be installed properly, at the correct release level, to ensure proper performance of Sametime.

Domino environment

For Domino 4.6.2 through 4.6.5 server environments, the Sametime server can be installed on a Domino server or on a dedicated server. The server that includes Sametime can be integrated into the Domino environment. Refer to the *Sametime Installation Guide* for installation instructions.

When installed into a Domino 4.6.5 or 5.0.1 server environment, the Address Book on the Sametime server uses the same template as the Address Books on the Domino servers. In this environment, it is not necessary to update the design of the Address Book on the Sametime server after the installation. Also, the Address Book can be replicated from the Sametime server to Domino servers.

If your Domino environment is running a Domino server release earlier than 4.6.5, or Domino server release 5.0 or 5.0a, the Address Book used on the Domino servers will not contain the fields required to support Sametime functionality. In these environments, you may need to manually update the design of the Address Book on the Sametime server, as described in the *Sametime Installation Guide*.

For Domino R5 server environments, the Sametime server can be installed on a dedicated server and integrated into the Domino environment. However, the Sametime server cannot be installed on the same computer as a Domino R5 server. For more information, see Domino R5 Installation issues in the Troubleshooting section of the Release Notes and the *Sametime Installation Guide*.

A Sametime server that is integrated into a Domino environment is designed to work as part of an existing Domino domain and to interoperate with the directory, security, and administration features of Domino.

The English version of Sametime can also interoperate with Notes R4.6.1.

Multiple Sametime servers

Multiple Sametime servers can be installed in a Domino environment that shares Address Books. You can enable these servers to form one Sametime community. When multiple servers are installed, you must specify a home Sametime server for Community Services users. Optionally, you can connect the Meeting Servers of the Sametime servers to enhance Meeting Server performance and reduce network usage.

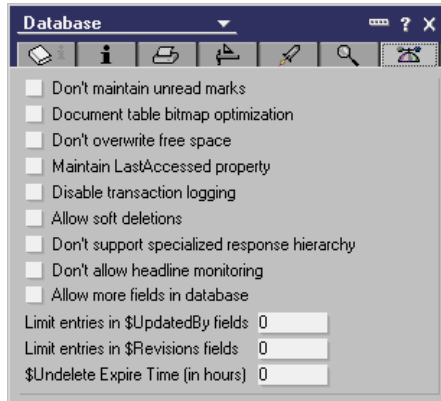
Refer to the Sametime Release Notes Troubleshooting chapter for suggestions regarding specific software problems that might arise from software interoperability issues.

Tip At the time this redbook was written, a redbook was being authored on Sametime. Check the IBM redbook Web site www.redbooks.ibm.com or the Lotus redbook Web site at www.lotus.com/redbooks for the latest releases of Redbooks and Redpieces.

The Database Properties box

There have been many enhancements in R5 to improve performance. Some of these are present within the properties available to be set for databases on the Domino R5 server. We are going to list some of the performance — enhancing options located in the Database Properties box and describe their uses.

The Database Properties box now looks like this:



Don't maintain unread marks

Select “Don't maintain unread marks” to improve performance. Maintaining unread marks in a database requires system resources and can significantly slow database performance. For some databases, unread marks aren't useful — for example, reference databases, such as the help databases provided with Domino, administration databases such as the Directory, or databases such as the log file (LOG.NSF) that are continually updated. In these types of databases, consider disabling unread marks. To do this, select the database property “Don't maintain unread marks.”

Note Designing views that don't display unread marks doesn't improve database performance.

Document table bitmap optimization

Select “Document table bitmap optimization” to improve performance. When updating a view, Domino refers to tables of document information. These tables are stored internally in the database. By default, during view updates and rebuilds, Domino searches each table for documents that appear in the view being updated. To update views more efficiently, select the database property “Document table bitmap optimization.”

This property associates tables with the forms used by the documents that tables contain. During a view update, Domino searches only the tables associated with the forms used by documents in the view being updated. This significantly improves the performance of view updates, especially updates of small views within large databases — for example, the Connections view in the Directory.

This property only works for views that use Form= as part of the selection criteria. There's a slight performance cost to maintaining the table/form association; however, when updating small views in large databases, the benefits offset the cost.

If you select or deselect the “Document table bitmap optimization” property, you must compact the database so that the setting takes effect. Compacting in this case makes a temporary copy of the database, so your system must have the disk space to make the copy.

Tip You can also use the `load compact` command with the `-F` or `-f` argument to enable or disable this property.

Don't overwrite free space

Select “Don't overwrite free space” to improve performance. When data is deleted from databases, Domino, by default, overwrites the deleted data on disk with a pattern. This pattern prevents an unauthorized user from using a utility to access the data. This overwriting causes disk I/O and can affect database performance.

Preventing the overwriting of deleted data is appropriate in the following circumstances:

- The data is already secure — for example, the database is on a server in a locked room.
- Deleted space in the database is constantly reallocated — for example, in a system database such as MAIL.BOX.
- Data security isn't an issue — for example, in an informal discussion database.

To prevent the overwriting of deleted data, select the database property “Don't overwrite free space.”

Maintain LastAccessed property

Deselect “Maintain LastAccessed property” to improve performance. The Document Properties box displays the field “Accessed in this file,” which can show the date a document was last modified or read. The database property “Maintain LastAccessed property” controls whether the “Accessed in this file” field is updated if the last document access was a read. Maintaining the “Accessed in this file” fields for reads causes disk I/O that wouldn't otherwise occur.

By default, the database property “Maintain LastAccessed property” is not selected, meaning the “Accessed in this file” field isn’t updated when the last document access was a read, only when the last access was a document modification. Change the default behavior by selecting “Maintain LastAccessed property.”

You should maintain the “Accessed in this file” field if you use the Database Properties document deletion tool to delete documents based on days of inactivity.

Allow soft deletions

Selection of “Allow soft deletions” also requires a time frame to be set in \$Undelete expire time to determine how long deleted documents will be available for recovery until they expire. The soft-deleted documents will not appear in your trash folder once the database views have been refreshed (via pressing F9, choosing View and Refresh, or when closing the database).

In order to view and recover these deleted documents, you must create a special view in the database, as follows:

1. Open Domino Designer and open the database.
2. From the main menu, choose Create – View.
3. In ‘View Name’ type the desired name (you may call this view anything you wish).
4. In ‘View Type’ select ‘Shared, contains deleted documents’ from the drop-down box.

This creates a view in the database that allows a user to see all soft-deleted documents. You can now access these documents.

Don’t support specialized response hierarchy

Select “Don’t support specialized response hierarchy” to improve performance. By default, every document stores information that associates it with a parent document or a response document. Only the @functions @AllChildren and @AllDescendants, which are often used in view selection and replication formulas, use this stored information.

To dramatically improve database performance, disable the response hierarchy information in databases that don’t use these @functions by selecting the database property “Don’t support specialized response hierarchy.”

Disabling the response hierarchy information has no effect on views and replication formulas that display information hierarchically without using @AllChildren and @AllDescendants.

If you select or deselect the “Don’t support specialized response hierarchy” property, you must compact the database so that the setting takes effect. Compacting in this case makes a temporary copy of the database, so your system must have the disk space to make the copy.

Tip You can also use the `load compact` command with the argument `-H` or `-h` to enable or disable this property.

Allow more fields in database

Selecting this option enables a function called Large UNK Tables. UNK derives its name from Unique Key Table. The UNK table is an internal table which stores all of the unique fields in a Notes database. In order to take advantage of Large UNK Tables, the database must be converted to the R5 format by compacting it on an R5 Server, or compacting it locally on an R5 Client. In Notes R5, the 64k UNK limit has been raised to 65,000 entries.

Limit entries in \$UpdatedBy fields

Select the “Limit entries in \$UpdatedBy” fields to improve performance. Every document includes an \$UpdatedBy field that stores, by default, the name of the user or server associated with each document-editing session. Storing a complete edit history consumes disk space and slows view updates and replication.

To conserve disk space and improve database performance, use the database property “Limit entries in \$UpdatedBy fields” to specify the number of entries that the \$UpdatedBy field can contain. When the \$UpdatedBy field reaches this limit, the oldest entry is removed to make room for the newest entry.

Limit entries in \$Revisions fields

Select the “Limit entries in \$Revisions” fields to improve performance. Every document includes a \$Revisions field that stores, by default, the date and time of each document editing session. Domino uses this field to resolve replication or save conflicts that occur when two users simultaneously edit the same document on one replica, or edit the same document on different replicas between replications.

By default, the \$Revisions field stores a history of up to 500 edit sessions, each of which requires 8 bytes of disk space. Over time, \$Revisions fields can grow larger, taking up disk space and slowing view updates and replication. To conserve disk space and improve database performance, use the database property “Limit entries in \$Revisions fields” to specify the number of entries that the \$Revisions field can contain. When the \$Revisions field reaches this limit, the oldest entry is removed to make room for the newest entry.

Consider limiting the entries in \$Revisions fields on a database with all of the following characteristics:

- The database contains many documents.
- The database either replicates often or has no replicas.
- The database contains documents that are not often edited.

A suggested limit is 10 entries. If you set the limit lower than 10, you run the risk of increased replication or save conflicts.

For more information on database properties and their uses, refer to the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

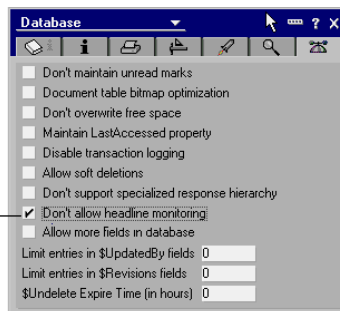
Subscriptions

Subscriptions are actually more of a client feature. They proactively notify users about new information added to a specific database. Refer to Chapter 1, “Ease of using the Notes R5 client,” for a comprehensive look at the client features, including subscriptions.

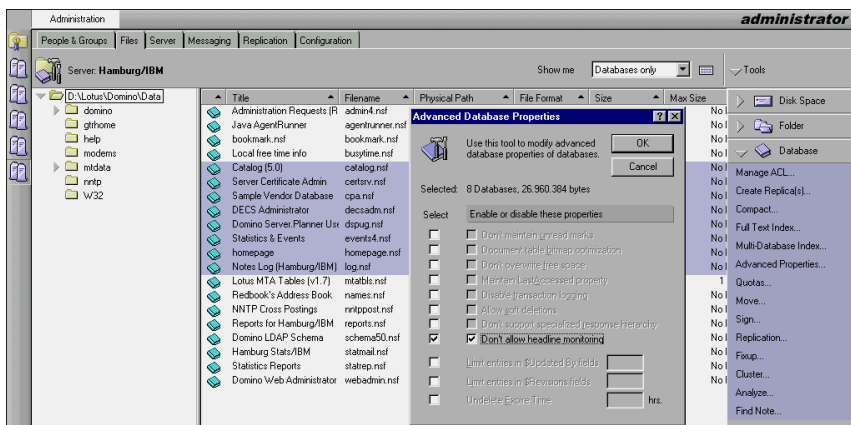
Let’s look at the server side, because although they are a client feature, subscriptions will increase the load on your Domino server. Clients will pull information for subscriptions in a manner comparable to looking for new mail on a mail server. In fact, the interval of subscription lookup is determined by the mail lookup setting in User Preferences.

Besides client activity, subscribing can be controlled by the administrators on both the database and server level. To support subscriptions, a database must reside on an R5 server or R5 client; subscriptions will also work for R4 databases with ODS level 20. To control subscribing on the database level, it must be on ODS level 41. Subscriptions can be turned off in the Database properties section on the Advanced tab.

Select to prevent
subscribing to this
database



To handle multiple databases at the same time, select the Files tab of the Administrator client, select the databases, and click Advanced Properties under Tools - Database. Select the “Don’t allow headline monitoring” option.



To restrict headline monitoring on databases on the server level, open the specific Server document, click the Security tab, and select “Server Access Who Can.” The two fields “Allowed to use monitors” and “Not allowed to use monitors” determine who can monitor that server. This includes subscriptions to databases on that server. You need to qualify persons or group names. By default, anyone can issue subscriptions.

Server Access	Who can -
Only allow server access to users listed in this Directory:	No
Access server:	
Not access server:	
Create new databases:	
Create replica databases:	
Allowed to use monitors:	*
Not allowed to use monitors:	
Administer the server from a browser:	Admin1 Redbook./IBM

Tip Start with an open configuration to avoid administrative overhead when applications or users want to use subscriptions. However, if you experience performance problems on a server, we recommend limiting headline monitoring.

System databases overview

The system databases have very different upgrade approaches depending on their function and enhancements in R5. Basically, there are six different scenarios. The template change categories and their implications to your upgrade are as follows:

1. Template remained unchanged
No upgrade consideration
2. Template design changed — same template name — same replica ID
Manual or automatic update
3. Template design changed — same template name — new replica ID
Manual or automatic update
4. Template design changed — new template name — same replica ID
Manual or automatic update
5. Template design changed — new template name — new replica ID
Manual or automatic update
6. Template is not shipped with R5
Integration tests or suspend service

In the following table, you can find the system databases from R4 and their equivalent in R5.

<i>Description</i>	<i>R4 Name</i>	<i>R5 Name</i>	<i>DB Type</i>	<i>Upgrade</i>
Administration Requests	admin4.ntf	admin4.ntf	Replica	Design task
Agent Log	alog4.ntf	alog4.ntf	Replica	Design task
Approval Cycle	approve4.ntf	—	Old	—
Archive Log (R5.0)	—	archlg50.ntf	New	—
Billing	billing.ntf	billing.ntf	Replica	Design task
Bookmarks	—	bookmark.ntf	New	—
Local free time info	busy time.ntf	busy time.ntf	Replica	Automatic
Catalog (5.0)	catalog.ntf	catalog.ntf	Not replica	Automatic
Certificate Authority	cca461.ntf	cca50.ntf	Not replica	Replace design
Certificate Log	certlog.ntf	certlog.ntf	Replica	Design task
Cluster Directory	cldbdir4.ntf	cldbdir4.ntf	Replica	Design task
Cluster Analysis	clusta4.ntf	clusta4.ntf	Replica	Design task

continued

<i>Description</i>	<i>R4 Name</i>	<i>R5 Name</i>	<i>DB Type</i>	<i>Upgrade</i>
Statistic Collector Config	Collect4.ntf		Old	—
Server Certificate Admin	csrv461.ntf	csrv50.ntf	Not replica	Replace design
Master Address Book / Directory Assistance	mab45.ntf	da50.ntf	Replica	Automatic
Database Analysis	dba4.ntf	dba4.ntf	Replica	Design task
Database Library	dblib4.ntf	dblib4.ntf	Replica	Design task
Decommission Server Report	—	decomsrv.ntf	New	—
DECS Administrator Template	decsadm.ntf	decsadm.ntf	Replica	Design task
Directory Catalog	—	dircat5.ntf	New	—
Discussion Notes & Web	discsw46.ntf	discsw50.ntf	Not replica	Replace design
Microsoft Office Library	doclbm46.ntf	doclbm50.ntf	Not replica	Replace design
Doc Library — Notes & Web	doclbw46.ntf	doclbw50.ntf	Not replica	Replace design
Domino Administrator	—	domadmin.ntf	New	—
Domino Web Server Configuration	domcfg4.ntf	domcfg5.ntf	Not replica	Documents copied to directory, replace design
Domino Web Log	domlog.ntf	domlog.ntf	Replica	Design task
Design Synopsis Template	—	dsgnsyn.ntf	New	—
Server.Planner: Analyst	dspa.ntf	dspa.ntf	Replica	Design task
Server.Planner: Decision Maker	dspd.ntf	dspd.ntf	Replica	Design task
Server.Planner: Vendor	dspv.ntf	dspv.ntf	Replica	Design task
Statistics and Events	events4.ntf	events4.ntf	Replica	Automatic
Subscriptions	—	headline.ntf	New	—
Mail (IMAP)	—	imapcl5.ntf	New	—
Notes Log	log.ntf	log.ntf	Replica	Automatic
Notes Log Analysis	loga4.ntf	loga4.ntf	Replica	Design task
Mail	mail46.ntf	mail50.ntf	Not replica	Manually

continued

<i>Description</i>	<i>R4 Name</i>	<i>R5 Name</i>	<i>DB Type</i>	<i>Upgrade</i>
Mail Router Mailbox	mailbox.ntf	mailbox.ntf	Replica	Automatic
Mailing List (5.0)	—	maillist.ntf	New	—
Domino MailTracker Store	—	mtstore.ntf	New	—
News Articles (NNTP)	—	nntpcl5.ntf	New	—
NNTP Discussion	nntpd46.ntf	nntpd50.ntf	Replica	Replace design
NNTP Cross-Post	nntppost.ntf	nntppost.ntf	Replica	Design task
NT/Migrating Users' Passwords	ntsync45.ntf	ntsync45.ntf	Replica	Design task
Portfolio	prtflo46.ntf	—	Old	—
PAB / Domino Directory	pubnames.ntf	pubnames.ntf	Replica	Automatic
Server Web Navigator	pubweb45.ntf	pubweb50.ntf	Not replica	Replace design
Reports	—	reports.ntf	New	—
Resource Reservations	resrc45.ntf	resrc50.ntf	Not replica	Replace design
Domino LDAP Schema	—	schema50.ntf	New	—
Site Registration 5.0	—	siregw50.ntf	New	—
Search Site	srchsite.ntf	srchsite.ntf	Replica	Design task
Statistic Reports	statrep45.nts	statrep50.ntf	Not replica	Automatic
User Registration Queue		userreg.ntf	New	—
Domino Web Administrator	webadmin.ntf	webadmin.ntf	Not replica	Automatic

Summary

Domino R5 provides extended capabilities and additional features within its system databases. The Domino R4 to R5 upgrade will automatically upgrade most system databases, but it does require manual intervention for administration requests and resources. Upgrading the system databases depends on your individual environment and configuration.

This chapter covered the following topics:

- Administration requests
- Resource reservation
- Domain search
- Decommission server
- Server planner
- Domain name search
- Subscriptions
- Application properties
- Sametime
- System databases overview

Chapter 13

Transaction logging

Domino R5 gives administrators a number of new tools and capabilities to effectively manage database backups and thereby protect their users' efforts. This chapter describes the transaction logging features of R5, and discusses how to implement and work with transaction logs. The following topics are covered:

- What transaction logging is
- Administrative aspects
- Architectural considerations
- Setting up transaction logging
- Troubleshooting transaction logging
- Third-party backup products
- Summary

What is transaction logging?

This section defines transaction logging.

What is a transaction?

A transaction is a database-specific function, such as creating, modifying, saving, or deleting a document, updating a view, or changing database attributes.

Specific transactions which are logged include the following:

- Document creation and changes (NoteUpdate)
- Folder operations
- Attachment operations
- Unread mark updates
- Database option changes

The following transactions are not logged:

- View and full-text index updates
- Dbfixup
- Compaction

Domino R4.x transactions

In Domino R4.x, a transaction needed to be committed to disk before being considered successful. Modifications could occur on different parts of a database or across multiple databases. Databases could be located in various sectors of the hard disk. This caused the server disk head to move over all areas of the disk to get the proper track and sector for the data that was changed or updated.

Domino R5 transaction logging

On a Domino R5 server set up for transaction logging, the server writes all transactions to a transaction log. The Domino R5 transaction log is a write-ahead log which allows transactions such as deletions, inserts, or updates to any data in a database to be written first to a log file. Writing to the transaction log is considered a commit of the transaction by the server, allowing the database operation to complete and continue.

When the transaction performs a commit, Domino ensures that all log files required for replay are written to disk. The transactions and their data are written to the actual database from the logs at some point in the future. Domino defers database updates to a period of low server activity.

In the case of a mishap such as a power failure, for example, the log files are used to bring the database back to a consistent state. All committed transactions are redone, and all uncommitted transactions are rolled back.

A Domino R5 server without transaction logging enabled will perform transaction commits in the same manner as a Domino R4 server.

As writing to the transaction log is sequential in nature, it results in faster commits to disk. The writing is sequential, since the disk head can move directly to the next available track on the disk, rather than moving over the disk to find the correct data files.

R5 transaction logging at its core is the same as DB2 transaction logging, and was developed by the IBM Almaden Research staff who worked on DB2 relational database development.

System benefits

At the operating system level, all file and disk operations are carried out by the OS kernel in either “kernel mode” or “privilege mode” (the process state where all file and disk operations are carried out by the OS kernel). This requires a context switch to the kernel thread to handle the task of moving data to and from disk. The longer the disk operations take, the more time the system spends waiting for I/O to complete and the less time it spends doing the work of the application (that is, Domino).

Transaction logging improves the overall I/O throughput of Domino; therefore, it reduces kernel time and increases user time (the process state that all applications run). The reduction in time spent in kernel mode reduces the overall CPU cycles required to do the same work. Domino can then use those cycles. Transaction logging improves overall Domino server transaction throughput, which potentially allows the same server to support more users.

Domino database instance

When you enable transaction logging on a Domino R5 server, Domino assigns a database instance ID (DBIID) to each Domino R5 database on the server. When Domino records a transaction to the transaction log, it includes the DBIID. During a recovery, Domino uses the DBIID to match transactions to databases.

Database recovery

In Domino R4.x, if a server crashed and the administrator rebooted the server, fixup would check each document in every database for errors. This was a time-consuming task, and if fixup encountered any corrupted documents, it would delete them. Any transactions not completed when the server crashed would be lost.

In the event of a server crash with transaction logging enabled in Domino R5, the recovery manager compares the database to the transaction log. Recovery manager uses the transaction log as a record to replay changes not written to the database during the crash, resulting in no loss of data.

Backups

In a Domino R4.x server or a Domino R5 server without transaction logging enabled, the backup process involved copying files to a tape or drive through the use of third-party products. If the backup product used did not back up open database files, the backup process involved work-arounds, such as taking the Domino server down to ensure complete backups of files.

In R5, support for online database backup and media recovery, including point-in-time media recovery, is available via new API functions. One such product is Tivoli Data Protection, part of the product suite under the Tivoli Storage Manager (TSM). The Tivoli Data Protection for Domino product works with existing ADSM 3.1 servers and TSM 3.7 products.

More information on Tivoli Data Protection can be found at:

http://www.tivoli.com/products/index/data_protect_domino

Note The ADSM Connect Agent for Domino does not work with Domino R5 transaction-logged servers.

A list of other third-party products available for backups with Domino R5 is provided at the end of this chapter.

The recommended backup strategy for a server that is configured for transaction logging is as follows:

- Schedule daily incremental backups of the transaction log. Use the backup utility daily to back up the transaction log.
- Schedule archiving of transaction log files.
- Schedule weekly full database backups. Each week, it is recommended that you run the compact task with the option to reduce file size. Because this compaction style changes the DBIID for each database, you should schedule compaction with a full database backup.

For more information on transaction logging, see the Notes Net article “*Optimizing Server Performance — Transaction Logging*” at

<http://www.notes.net/today.nsf>, the Lotus Customer Support Technical Paper # 172508 — “*Transaction Logging in Domino R5*,” and the Domino R5 Administration guides that are available with the product.

Administrative aspects

Some database maintenance activities, such as compaction with options, cause Domino to assign a new DBIID to a database. From that point forward, all new transactions recorded in the log use the new DBIID; however, any old transactions still have the old DBIID and no longer match the new DBIID for the database. As a result, Domino cannot restore these old transactions to the database.

Note All databases need to be in Domino R5 ODS.

Domino assigns a new DBIID to Domino R5 databases under the following conditions:

- You enable transaction logging for the first time.
- You run the Compact server task with any options.
- You run the Fixup task on corrupt databases.
- You change the log path or maximum log size after initial setup and use.
- You move a Domino R5 database from one logged server to another logged server, or from an unlogged server to a logged server.

Important To avoid losing data, you should immediately perform a full database backup whenever a database receives a new DBIID. When you perform this backup, you capture all the database transactions up until that point and ensure that Domino needs only the new transactions (with the new DBIID) to restore the database.

In-place compacting with space recovery only

This style of compacting recovers unused space in a database, but does not reduce the size of the database on disk. Databases retain the same database instance IDs, so the relationship between the compacted databases and the transaction log remains intact. Users and servers can continue to access and edit databases during compacting. This style of compacting is useful for R5 databases that you expect to either stay the same size or grow larger.

When you run Compact without specifying options, Domino uses this style of compacting on all R5 format databases enabled for transaction logging.

In-place compacting with space recovery and reduction in file size

This style of compacting reduces the file size of R5 databases and recovers unused space in databases. This style of compacting is somewhat slower than in-place compacting with space recovery only. It assigns new DBIIDs to databases and allows users and servers to continue to access and edit databases during compacting.

When you run Compact without specifying options, Domino uses this style of compacting on R5 databases that are not enabled for transaction logging.

Copy-style compacting

Copy-style compacting creates copies of databases and then deletes the original databases after compacting is completed, so extra disk space is required to make the database copies. This style of compacting essentially creates a new database with a new database ID. If you use copy-style compacting on R5 logged databases (using the -C option), compacting assigns new DBIIDs, so if you use an R5-certified backup utility, you should do full backups of databases shortly after compacting completes.

Fixup task

Domino runs the Fixup task on databases that use formats from earlier releases, on databases that are in Release 5 format but have transaction logging disabled, and on corrupt databases if you have the “Auto fixup of corrupt databases” field in the Server document set to Yes.

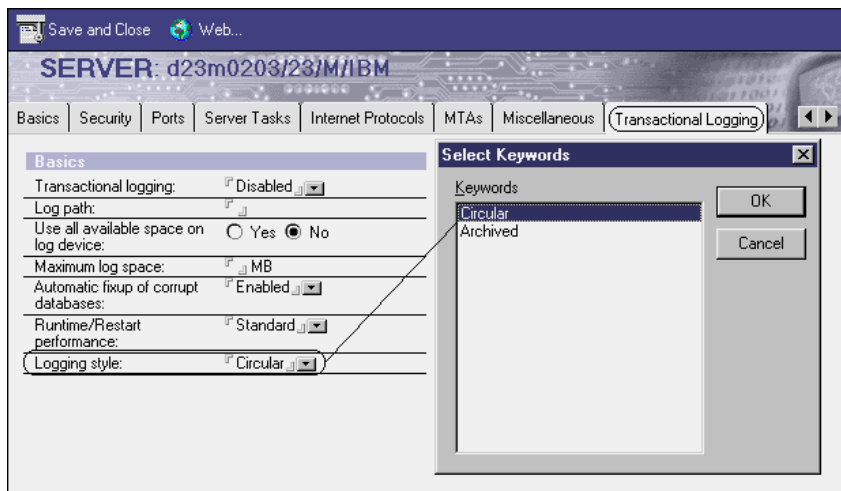
Using the switch Fixup - J causes Fixup to run on R5 databases that are enabled for transaction logging. Without this option, Fixup generally doesn't run on logged databases. The Fixup task with the -J switch changes the DBIID.

Architectural considerations

The following sections cover architectural considerations.

Transaction log types

Transaction log types are set in the Transaction Logging tab of the Server document in the Administration client.



There are two types of transaction logs available in Domino R5:

1. Circular logging

Circular logging is the default transaction log type. Circular logging uses one transaction log of designated space, and overwrites old data in the transaction log (first in, first out) when the allocated file size has been reached with new transactions.

Circular logging uses less space on a Domino R5 server, but because the transactions in the log are overwritten, this method limits the administrator's recovery options. All transactions in the log are written to the databases before they are overwritten in the log.

Circular logging is most useful for recovery of the server in the event of server crashes, and will improve the server performance. If you use circular logging, the administrator will need to implement a backup strategy for Notes databases that deals with each database as an independent entity with no incremental backup capacity.

Circular logging may be of use on hub servers where the server performs an administrative function, such as a mail hub or replication hub, where the server has no mail or application databases that will require restoration from backup.

2. Archive logging

Archive logging writes all transactions to the log, and once all changes have been written to the database, allows the archive of the transaction log. These transaction logs are termed inactive, since they do not contain any transactions necessary for a restart recovery.

When Domino restarts using the existing file again, it increments the log file name. If all the log files become inactive and are not archived, Domino creates additional log files.

Archive logging is the recommended method of transaction logging. Archive logging requires the use of a third-party backup utility, such as Tivoli Data Protection, to copy and archive the existing log files. Archive logging will enable rollback, media recovery, and point-in-time recovery methods with the use of a third-party backup utility.

It is not recommended that you use archive logging without a third-party backup utility which can read the logs. The backup utility polls the log extents to determine which need backing up and reports when the backup is complete so the log extent can be reused. If this is not done, the Domino server may run out of disk space and crash.

Transaction log size

The circular transaction log has a maximum size of 4GB. The archival transaction log can grow to fill the amount of available disk space. The transaction log is made up of log extents which have a file name extension of *.txn, and a descriptor file which has an extension of *.lfh. The log extent files are used to hold the transaction log data. The descriptor file contains a listing of the log extent files. There is one log per data directory.

Domino will create between 3 and 64 log extent files based on the space needed for the transaction log. The log extents are 64MB in size.

If transaction logging is configured for circular logging, the log extents are reused in a cycle; if configured for archival logging, the log extents are backed up as they become full.

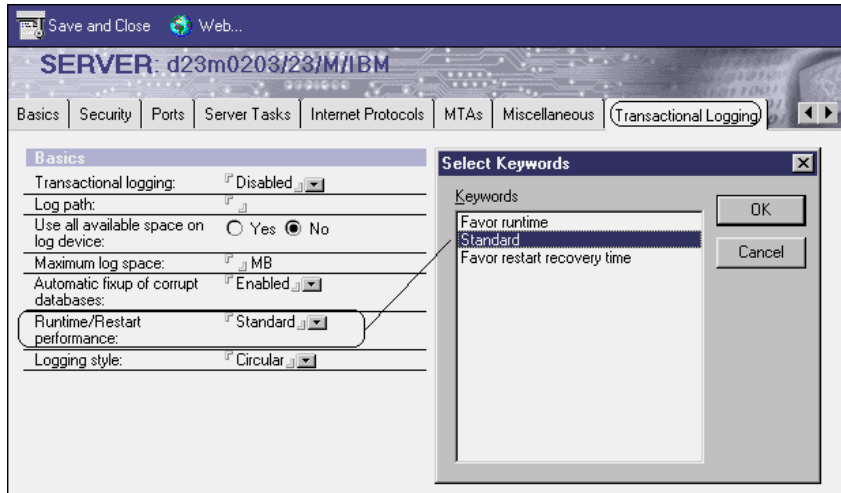
Recovery checkpoints

The Runtime/Restart field controls how often Domino records a recovery checkpoint in the transaction log, which in turn affects the server performance.

To record a recovery checkpoint, Domino evaluates each active logged database to determine how many transactions would be necessary to recover each database after a system failure. When Domino completes this evaluation, it does the following:

- Creates a recovery checkpoint record in the transaction log, listing each open database and the starting point transaction needed for recovery.
- Forces database changes to be saved to disk if they have not been saved already.

When configuring transaction logging, you can elect to favor runtime or the restart of the server. Configuration is available in the Server document under Transaction Logging in the Administration Client.



Standard

The standard configuration provides normal transaction logging functionality.

Checkpoints normally occur at 16MB.

Favor runtime

With the favor runtime configuration, Domino records fewer checkpoints. Therefore, changes in the transaction log are written to disk less frequently. This allows Domino more cycles and will provide better performance of the Domino server. The trade-off is that the server will take longer to restart, as it will have more to restore to the databases in the event of a server crash.

If transaction logging is configured for favor runtime, checkpoints occur at 500MB, depending on the maximum log size defined.

Favor restart recovery time

With the favor restart recovery time configuration, Domino records more checkpoints. Therefore, changes in the transaction log are written to disk more frequently. This configuration uses more cycles for I/O and provides less of a performance gain. The server will restart more quickly, as there are fewer changes to write to the databases in the event of a server crash.

If transaction logging is configured for favor restart recovery time, checkpoints occur at 5MB.

Hardware considerations

For the maximum performance benefits to be achieved from transaction logging, we recommend that you allocate a separate disk with at least 1GB of disk space for the transaction log. Writes to the log file are sequential, and having a dedicated disk for transaction logging avoids the need to have any other data written to the drive, as well as reducing any random head movement.

To further maximize performance, place the log file drive on its own channel, or on its own controller. Any work the disk head does other than I/O for the transaction log will decrease performance.

The larger the disk space allocated to the transaction log, the longer the life span of the data in the transaction log before it is overwritten. If you have the disk space available, it is recommended that you allocate the maximum of 4GB to the transaction log.

The transaction log cannot recover itself. If a log extent is corrupted, the log extent and data within can be lost. Mirror the disk, or place in a Raid0 or Raid1 array for reliability and failover.

Using archival logging with an incremental backup tool such as Tivoli Data Protection provides greater recovery than a standard backup in Domino R4. In Domino R4, the latest recovery you could do was the incremental backup done from the night before. Using archival logging and incremental backups of the transaction log extents will allow a recovery to the last extent backed up. In the event of a log extent becoming corrupted, the most you will lose is data for that log extent.

Partitioned servers

Domino servers require a separate transaction log for each server. On a partitioned server, there are separate transaction logs for each partitioned server. The transaction log disks should be separate, following the same guidelines for individual servers. Running N partitions on one physical SMP server requires N separate transaction log file systems and N separate transaction log disk drive mirrored sets.

Setting up transaction logging

Transaction logging is activated on each server individually, using the following steps:

1. Open the Server document of the server for which you want to enable transactional logging and go to the Transaction Logging tab.

2. Configure the following fields:

- Transactional logging: Enabled
- Log path: D:\Translog
Path for the log files. Should be on a separate, dedicated disk.
- Use all available space on log device: No
If you use a dedicated disk, this can be set to Yes. The log files will use all available space on the disk.
- Maximum log space: 1024MB
Limits the amount of used disk space for logging. We recommend at least 1GB.
- Automatic fixup of corrupt databases: Enabled
The Fixup task is automatically run on corrupted databases that cannot be recovered by transaction logging.
- Runtime / Restart performance: Standard
The runtime and restart performance depend on how often Domino writes a recovery checkpoint in the transaction log. The more checkpoints that are recorded the better the server will restart, but it needs runtime performance to write them. The Standard setting balances both and writes checkpoints regularly.
- Logging style: Circular
The circular logging style reuses and overwrites old transaction logs. The Archive option is used with third-party backup utilities. Domino will not reuse any logs until they have been archived. Domino then increments the log file name.

Save and Close Web...

SERVER: Sydney/IBM

Basics Security Ports Server Tasks Internet Protocols MTAs Miscellaneous Transactional Logging

Basics

Transactional logging: ☒ Enabled

Log path:

Use all available space on log device: ☐ Yes ☒ No

Maximum log space: MB

Automatic fixup of corrupt databases: ☒ Enabled

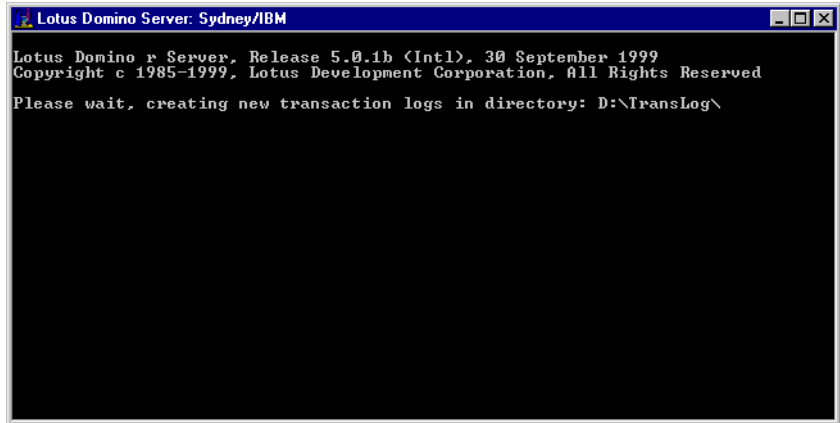
Runtime/Restart performance: ☒ Standard

Logging style: ☒ Circular

3. Restart the Domino server.

The first time the server starts after enabling transaction logging, it needs some time to configure the initial log files and assign the DBIID to the R5 databases. During our tests, it took a few minutes on standard servers without many additional databases.

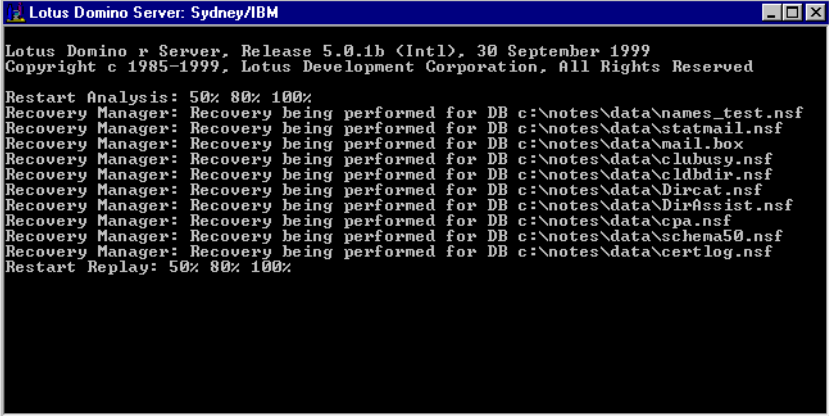
You will see the following message on the server console:



Depending on the size of your log path or disk, Domino will create between 3 and 64 log files.

Contents of 'D:\TransLog'					
Name	Size	Type	Modified	Attributes	
nlogctrl.lfh	3KB	LFH File	12/7/99 9:33 AM	A	
S0000000.txn	65,537KB	TXN File	12/7/99 9:31 AM	A	
S0000001.txn	65,537KB	TXN File	12/7/99 9:31 AM	A	
S0000002.txn	65,537KB	TXN File	12/7/99 9:31 AM	A	
S0000003.txn	65,537KB	TXN File	12/7/99 9:31 AM	A	
S0000004.txn	65,537KB	TXN File	12/7/99 9:31 AM	A	
S0000005.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000006.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000007.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000008.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000009.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000010.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000011.txn	65,537KB	TXN File	12/7/99 9:32 AM	A	
S0000012.txn	65,537KB	TXN File	12/7/99 9:33 AM	A	
S0000013.txn	65,537KB	TXN File	12/7/99 9:33 AM	A	
S0000014.txn	65,537KB	TXN File	12/7/99 9:33 AM	A	
S0000015.txn	65,537KB	TXN File	12/7/99 9:33 AM	A	

After transaction logging is enabled, you will notice a different recovery behavior on server start. The Fixup task will only be used for R4 databases or those with disabled transaction logging. The recovery time after a server crash will decrease significantly. You will notice this behavior on the server console or in the log file when a server is restarted after a crash. This is shown in the next figure:



```

Lotus Domino Server: Sydney/IBM

Lotus Domino r Server, Release 5.0.1b (Intl), 30 September 1999
Copyright c 1985-1999, Lotus Development Corporation. All Rights Reserved

Restart Analysis: 50% 80% 100%
Recovery Manager: Recovery being performed for DB c:\notes\data\names_test.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\statmail.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\mail.box
Recovery Manager: Recovery being performed for DB c:\notes\data\clubusy.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\ldbdir.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\DirAssist.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\cpa.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\schema50.nsf
Recovery Manager: Recovery being performed for DB c:\notes\data\certlog.nsf
Restart Replay: 50% 80% 100%
  
```

NOTES.INI parameters

The configuration performed in the steps outlined in the previous section will be reflected in the NOTES.INI file. The following list of parameters resulted from our configuration:

- TRANSLOG_AutoFixup=1 Specifies if a Fixup is performed on corrupt databases after recovery failed. (0 = No, 1 = Yes)
- TRANSLOG_UseAll=0 Shows whether or not to use all of the available disk space for logging. (0 = No, 1 = Yes)
- TRANSLOG_Style=0 Shows the style of logging (0 = Circular, 1 = Archive)
- TRANSLOG_Performance=2 Reflects the runtime / restart performance (1 = favor runtime, 2 = Standard, 3 = favor recovery)
- TRANSLOG_Status=1 Enables transaction logging on a server (1 = enabled, 0 = disabled)
- TRANSLOG_MaxSize=1024 Maximum size for transaction log in MB
- TRANSLOG_Path=D:\TransLog Path where the transaction log resides

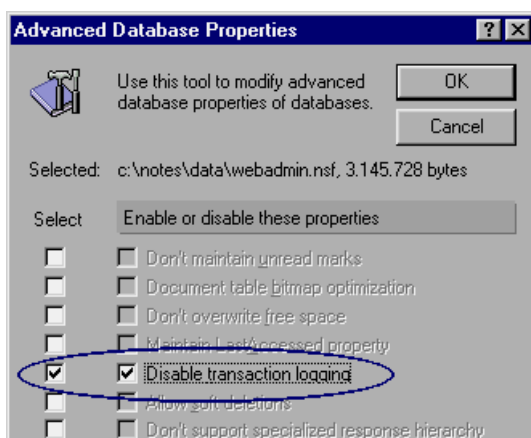
Backup entries:

- Previous_TRANSLOG_Status=1
- Previous_TRANSLOG_Path=D:\TransLog\
- Previous_TRANSLOG_Style=0

Individual database setting

If you enable transaction logging on a R5 Domino server, all the databases in R5 ODS (Level 41) will be automatically logged. You can individually configure databases to be not logged.

Open the Advanced Database Properties and select “Disable transaction logging.” For multiple databases, use the Files tab of the Administrator client.



You can also use the compact task to enable or disable transaction logging as follows:

- To enable transaction logging: `load compact -T <databasename>`
- To disable transaction logging: `load compact -t <databasename>`

Note These compact commands are performed in the R4 style, copying the database rather than performing an inline compaction.

This option, as well as the other advanced compact options, are not available in the compact tool on the Files tab of the Administration client.

Recovery failure

If transaction logging restart fails, a server console error message appears, as well as a list of all the unrecovered databases:

Recovery Manager: Logged Database cannot be accessed during Restart/Media Recovery Phase databasenames

You can use this list to decide whether to retrieve backup copies of these databases (if available) and replace them with the backups, or leave them and have Fixup run on them during the next server startup.

Note Running Fixup on logged databases is not recommended.

When you need to make changes

The following section describes what to consider when you need to make changes.

Switch logging style

The logging style can be changed after transaction logging is implemented. The server will automatically reconfigure the log files to the adjusted type.

Moving databases

Moving a database within the server data directory can be done without problems. The DBIID is used to identify the database.

Moving logs

If you want to move your transaction log files to a different location, perform the following steps:

1. Change the Log path in the Server document.
2. Shut down the server.
3. Manually move logs to the new destination on the level.
4. Restart the server.

Adding more log disk space

Use the following steps to add more log disk space:

1. Change the Maximum log space setting in the Server document.
2. Recycle the server.

Forcing the transaction log to write transactions to database

The initialization of fixup will trigger a restart and recover the logged databases to a clean state.

Clear all clients and applications on the server, verify that it does not show on a SHOW DBS, then do a DBCACHE FLUSH to clear it from cache.

For more information on transaction logging, refer to the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA, and *Administering the Domino System, Volume 2*, Lotus part number CT6T8NA.

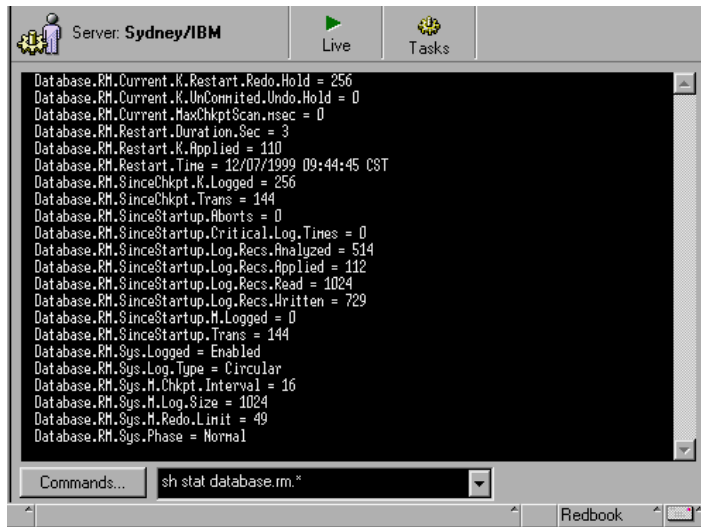
Troubleshooting transaction logging

After enabling transaction logging on your server, you can check the log path for the created log files.

To gather more information about the transaction log performance, issue the following server command:

```
sh stat database.rm.*
```

This shows you a list of recovery manager (RM) statistics, including the following:



The screenshot shows a Domino server console window titled "Server: Sydney/IBM". The window has a "Live" button and a "Tasks" button. The main area displays the output of the command "sh stat database.rm.*", which lists various RM statistics. At the bottom, there is a "Commands..." field containing the command "sh stat database.rm.*" and a "Redbook" button.

```
Database.RM.Current.K.Restart.Redo.Hold = 256
Database.RM.Current.K.UnCommitted.Undo.Hold = 0
Database.RM.Current.MaxChkptScan.msec = 0
Database.RM.Restart.Duration.Sec = 3
Database.RM.Restart.K.Applied = 110
Database.RM.Restart.Time = 12/07/1999 09:44:45 CST
Database.RM.SinceChkpt.K.Logged = 256
Database.RM.SinceChkpt.Trans = 144
Database.RM.SinceStartup.Aborts = 0
Database.RM.SinceStartup.Critical.Log.Times = 0
Database.RM.SinceStartup.Log.Recs.Analyzed = 514
Database.RM.SinceStartup.Log.Recs.Applied = 112
Database.RM.SinceStartup.Log.Recs.Read = 1024
Database.RM.SinceStartup.Log.Recs.Written = 729
Database.RM.SinceStartup.N.Logged = 0
Database.RM.SinceStartup.Trans = 144
Database.RM.Sys.Logged = Enabled
Database.RM.Sys.Log.Type = Circular
Database.RM.Sys.N.Chkpt.Interval = 16
Database.RM.Sys.N.Log.Size = 1024
Database.RM.Sys.N.Redo.Limit = 49
Database.RM.Sys.Phase = Normal
```


Table of transaction log statistics definitions

<i>Transaction log statistics</i>	<i>Definition</i>
Current state statistics	
Database.RM.Current.K.Restart.Redo.Hold	Changes sitting on log but not in databases as yet
Database.RM.Current.K.UnCommitted.Undo.Hold	Changes held back by long-running transactions
	The max of these first two statistics shows the amount of “active” log necessary for undo; that is, space needed in log for crash recovery, divided by (log.size * 1024) to get a percentage.
Statistics from last checkpoint taken	
Database.RM.LastChkpt.Avg.K.Logged.PerTran	Average size of the transactions
Database.RM.LastChkpt.Interval.Sec	Time since last checkpoint in seconds
Database.RM.LastChkpt.K.Logged	Amount logged in checkpoint interval
Database.RM.LastChkpt.Time	Time of checkpoint
Database.RM.LastChkpt.Trans	Actual transactional logging type transactions (API calls that did database updates) Stats from peak checkpoint (most transactions/sec)
Database.RM.Peak.Avg.K.Logged.PerTran	Average size of transactions
Database.RM.Peak.Interval.Sec	Time since last checkpoint
Database.RM.Peak.K.Logged	Amount logged in checkpoint interval
Database.RM.Peak.Time	Time of checkpoint
Database.RM.Peak.Total.Dbs	Databases open or in DBCache at time of checkpoint
Database.RM.Peak.Trans	Actual transactional logging type transactions (API calls that did database updates)
Database.RM.Peak.Trans.PerMin	Transactions per minute statistics from server restart

continued

<i>Transaction log statistics</i>	<i>Definition</i>
Database.RM.Restart.Duration.Sec	Time to apply the incomplete changes after a crash
Database.RM.Restart.K.Applied	Amount of incomplete changes detected and applied
Database.RM.Restart.Time	Time the server was started
Summary statistics	
Database.RM.SinceStartup.Aborts	Failed transactions – usually caused by corrupt database or notes in database, look at Misc view in log.nsf if large value.
Database.RM.SinceStartup.Critical.Log.Times	Shows how many times your system ran critically full log, if non-zero consider increasing log sizes
Database.RM.SinceStartup.M.Logged	How much log has been written. To monitor logging volumes, monitor this statistic regularly
Database.RM.SinceStartup.Trans	Actual transactional logging type transactions (API calls that did database updates)
Global settings	
Database.RM.Sys.Logged	If disabled, no other Database.RM statistics are shown
Database.RM.Sys.Log.Type	Logging style (circular or archival)
Database.RM.Sys.M.Chkpt.Interval	Checkpoint interval
Database.RM.Sys.M.Log.Size	Max log size defined
Database.RM.Sys.M.Redo.Limit	Recommended max redo.hold span before aggressive flushing occurs
Database.RM.Sys.Phase	Shows if media recovery was under way

Third-party backup products

The following table identifies some of the third-party backup utilities available for use with Domino R5. Additional information about these products can be found at their respective Web sites.

By listing these products in this document, IBM/Lotus does not solely endorse them for use in this type of environment. Other third-party products may be available that perform similar or equivalent functions.

<i>Company and Web address</i>	<i>Product</i>
BEI - Barratt Edwards International http://www.ultrabac.com/new/default.htm	Lotus Notes Agent for UltraBac 5.x for NT
Cheyenne / CAI - Computer Associates International http://www.cheyenne.com/Product-info/Datasheets/23007.htm	Backup Agent for Lotus Notes and ARCserver Backup 2.0 for NT and OS/2
CommVault Systems Inc. http://www.commvault.com/vault98.htm	Lotus Notes Agent for Vault '98 for NT
EMC Corporation http://www.emc.com/products/enterprise_storage_systems/edm/edm_1.htm	EMC Data Manager (EDM) for Notes v4.4 for NT 4.0, UNIX, AIX, AS/400
IBM - International Business Machines http://www.storage.ibm.com/software/adsm/adsmhome.htm	ADSM Connection Agent for Lotus Notes v2.1.8 for NT, AIX, OS/390.
IBM - International Business Machines http://www.tivoli.com/products/index/data_protect_domino	Tivoli Data Protection
Legato Systems http://www.legato.com/bussuite/lotus.htm	Business Suite Module for Lotus Notes (BML) v1.0 for NT, AIX, Sun SPARC
Seagate Software http://www.seagatesoftware.com/homepage/	BackupExec 7.2 for Notes for NT
VERITAS Software http://www.veritas.com/	NetBackup 3.1.1 for NT and Unix

Summary

In this chapter, we discussed aspects relating to transaction logging.

First, we defined the concept of transaction logging and explained its benefits. We covered some administrative aspects, as well as architectural considerations.

Following that, we showed you how to activate transaction logging on a server, and then discussed how to troubleshoot transaction logging.

Finally, we gave you a list of third-party backup products available for use with Domino R5.

Part 4

Front row: Taking advantage of the Notes R5 client

E-mail has become a very important part of a corporate user's life. Many Notes/Domino customers use their Notes clients to send e-mail and manage their calendars and to do lists.

Notes e-mail has gone through a number of upgrades over the years. The R5 mail template has been enhanced even further by closely integrating mail, calendar, and to do's. The mail template has a new look and feel, and takes advantage of many of the new template features that are described in Chapter 1 of this redbook.

These chapters will help the Notes R4.5 or R4.6 client user understand how mail, calendar, to do's, and personal address books have been enhanced. In R5, a lot more of the actions that you can take are right where you can see them. The user interface has been improved so that it looks neater and cleaner.

This part focuses on how you can configure and use some of the new R5 features that work with your e-mail.

Finally, we will take a look at the changes that have been made for the Web user in the areas of mail, calendar, and to do's.

Chapter 14

Installation of the R5 client

This chapter focuses on the installation and upgrade of your Notes client to R5. Information relating to methods used to distribute the client code is briefly discussed in Chapter 6, “Rollout considerations for upgrading to R5.” Information on customizing workstation installation for users and on automated installation can be found in Chapter 5 of the product documentation *Administering the Domino System, Volume 1*, Lotus part number CT6T7NA.

While an overview was presented in previous chapters, we will now describe the steps necessary to install the R5 client. Topics discussed in this chapter include the following:

- Backup and installation of R5 client code
- Bringing up the Notes R5 client for the first time
- Workspace and bookmarks
- New or moved files
- Synchronizing time zones and daylight savings time with Notes
- Summary

Backup and installation of R5 client code

Prior to upgrading to R5, you should back up the following files.

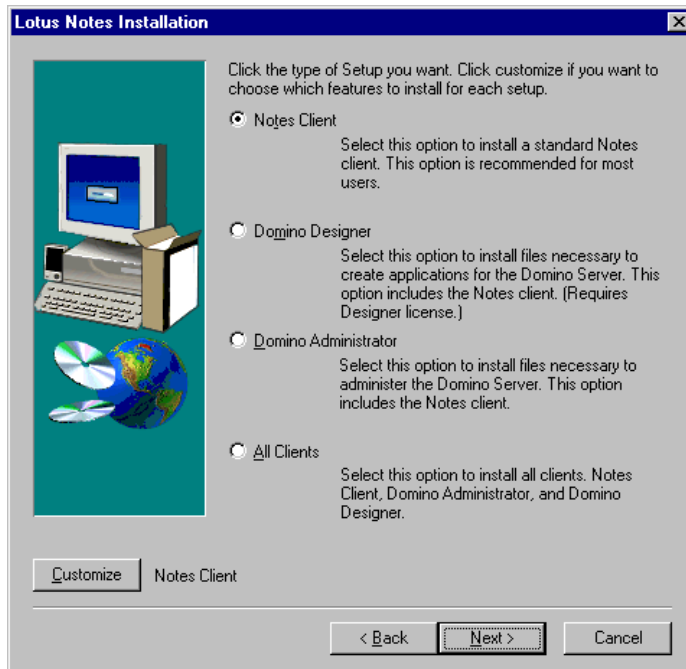
<i>File</i>	<i>Default location</i>
NOTES.INI (Notes Preferences on the MacIntosh)	System directory (for example, C:\Windows)
DESKTOP.DSK	Notes data directory (for example, C:\NOTES\DATA)
Personal Address Book(s) (NAMES.NSF by default)	Notes data directory (for example, C:\NOTES\DATA)
User ID files (for example, JSMITH.ID)	Notes data directory (for example, C:\NOTES\DATA)
Local databases (.NSF)	Notes data directory (for example, C:\NOTES\DATA)
Local database directory links (.DIR)	Notes data directory (for example, C:\NOTES\DATA)
Any customized Notes database templates (.NTF)	Notes data directory (for example, C:\NOTES\DATA)
User's dictionary file (USER.DIC)	Notes data directory (for example, C:\NOTES\DATA)

Both Notes and Domino R5 implement the industry-standard install program called InstallShield Wizard. The install procedure is significantly simpler than in previous versions and allows more flexibility in installation choices.

Follow these steps to install the Notes client:

1. Run setup.exe to start the R5 install program. Install Setup lets users select the type of Domino/Notes software to install. The installation includes the following pop-ups:
 - Standard InstallShield information
 - Warnings where other programs should not be running
 - License information
 - Lotus Notes installation: Enter your name and company
 - Select the destination folder and data folder for Notes

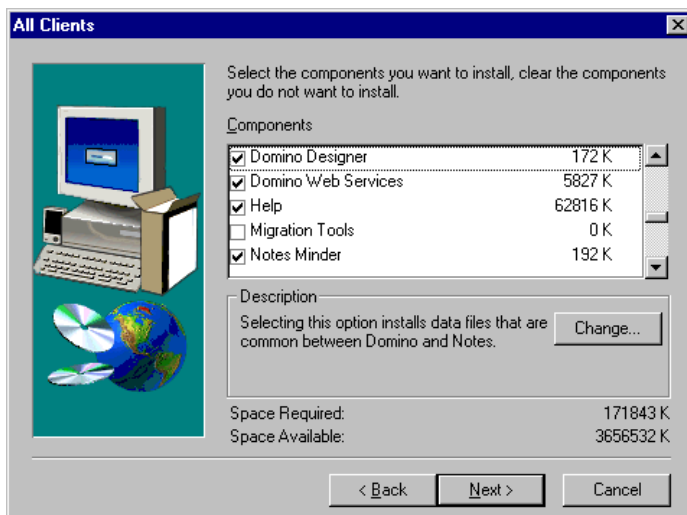
2. Select which clients you want. One choice can be made from among the following options:
 - Notes client
 - Domino Designer
 - Domino Administrator
 - All Clients
3. Alternatively, you can select one of the above and then choose Customize.



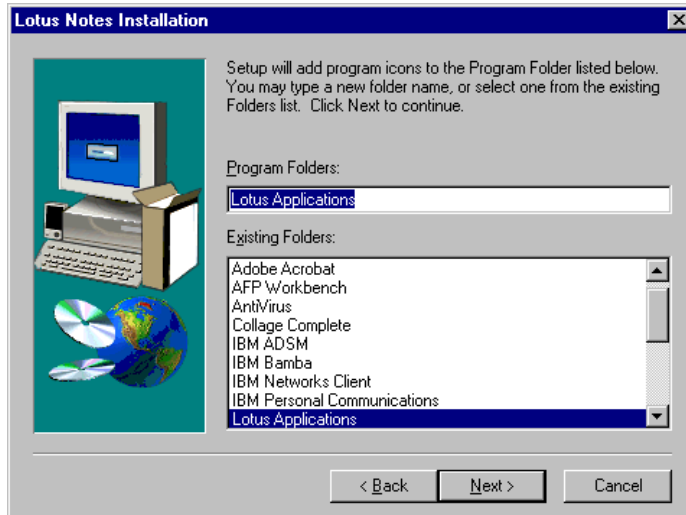
The following table summarizes the choices you have when selecting Customize, based on the option you selected in the dialog box. An X denotes that the option is preselected. If a size is provided, then that choice can optionally be selected.

<i>Option</i>	<i>Notes Client</i>	<i>Domino Designer</i>	<i>Domino Administrator</i>	<i>All Clients</i>
Common Data	X 1808K	X 1808K	X 12826K	X 12826K
Data Files	X 17534K	X 17534K	X 17534K	X 17534K
DECS		X 11436K	X 11436K	X 11436K
Administration Client			X 213K	X 213K
Domino Designer		X 172K		X 172K
Domino Web Services		X 5827K		X 5827K
Help	X 16895K	X 47934K	X 31777K	X 52816K
Migration Tools				
Notes Minder	X 192K	X 192K	X 192K	X 192K
Notes Program Files	X 54988K	X 54988K	X 54988K	X 54988K
Quickstart Tutorial		X 3820K	X 3820K	X 3820K
Spell Checker	X 1851K	X 1851K	X 1851K	X 1851K

4. Select the components you want to install, as shown in the figure below:



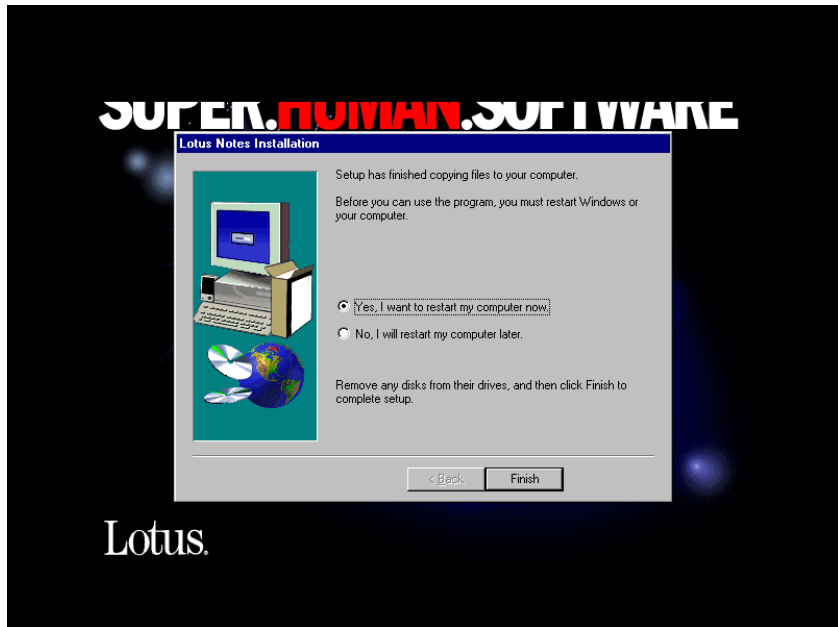
5. Select the name of the desired Program Folder, as shown below:



6. After you click the Next button, you will get a pop-up that displays progress as files are copied to your workstation.



7. You may or may not get instructions and the option to reboot your machine now or later. Depending on the prompt you receive, you may need to restart your computer. Once this is done, the installation is complete.



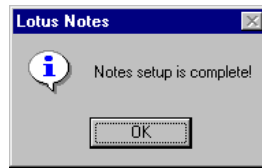
Starting the Notes R5 client for the first time

When you reboot your workstation and start Notes, the upgrade from your existing Notes client to R5 will begin. Follow these steps:

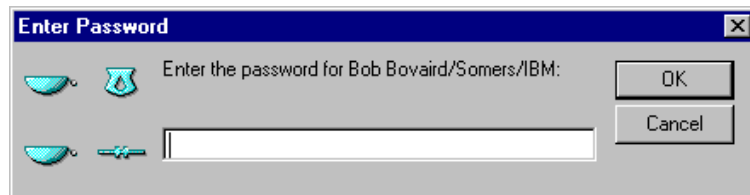
1. You will see the initial R5 splash screen.
2. When you upgrade to R5 on a Windows computer, you may be prompted to choose a time zone if the time zone setting in one or more of your Location documents does not match the Windows systems settings. See “Synchronizing time zones and daylight savings time with Notes” later in this chapter for more information on this subject.



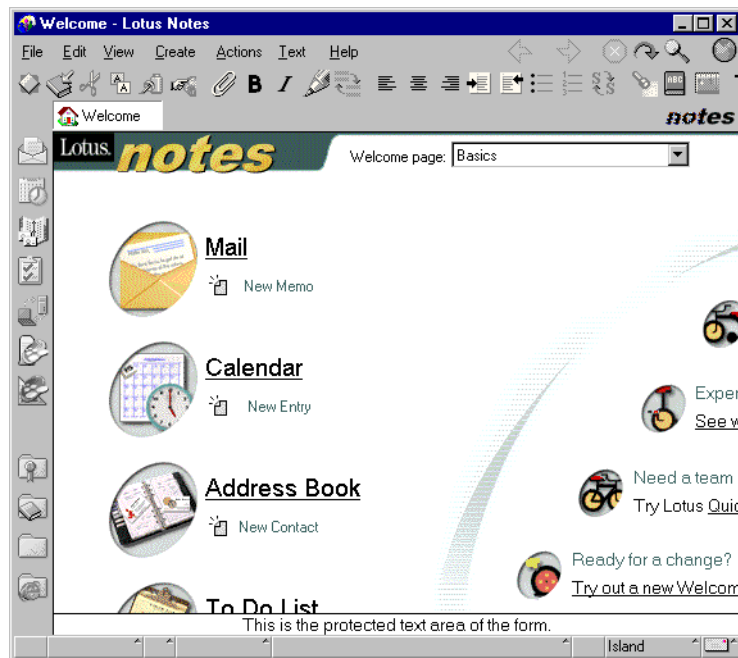
Eventually, you should receive notification that Notes setup is complete. This process can take a few minutes and will vary, depending on your hardware and the settings you have in your Personal Name and Address Book.



3. You are then prompted for the last password used prior to your upgrade to R5. When you enter this and click OK, Notes migrates your workspace to bookmarks. A progress bar is displayed while this upgrade takes place.



When your workspace is migrated, your R5 desktop will appear, as shown in the figure below:



Workspace and bookmarks

Notes R5 automatically converts your workspace into bookmarks, but your Notes 4 workspace is still accessible from your R5 client. You will find your workspace in your Databases bookmark folder. The locations of this folder and other databases are discussed in detail in Chapter 1, “Ease of using the Notes R5 client.”

New or moved files

The desktop.dsk file from R4 is migrated to two files in R5: bookmark.nsf and desktop5.dsk. The bookmark.nsf file contains information on the new R5 client interface, and the desktop5.dsk file contains information in the R4 workspace format. Workspace pages or tabs are migrated to bookmark folders, and workspace icons are migrated to bookmarks.

After the upgrade, your bookmark.nsf and desktop5.dsk will not be synchronized. Databases added to specific tabs will not be reflected in the associated bookmark folder. Additionally, bookmark icons will be placed on the first tab of the workspace, regardless of where they were placed.

As part of the upgrade, your R4 or R3 NOTES.INI file will be moved from your system subdirectory, such as C:\Windows, to the subdirectory where you stored the Lotus Notes client code, such as C:\Notes.

Help and documentation

A new help subdirectory is created under your data subdirectory, for example, C:\notes\data\help. In Release 4, help files were stored in the \notes\data subdirectory.

Depending on the options selected during the installation process, the help subdirectory will have some or all of the following files:

<i>Description</i>	<i>File name</i>
DECS 5.X documentation	decsdsc.nsf
Domino 5 Administration Help	help5_admin.nsf
Notes 5 Help	help5_client.nsf
Domino 5 Designer Help	help5_designer.nsf
Domino Connector Documentation	icon.nsf
LSX for Lotus Connectors Manual	rlslc.nsf
Release Notes for Domino/Notes 5.02	readme.nsf

You can download additional help, including the latest builds and Release notes, from the Documentation Library at Notes.Net at <http://notes.net/doc>.

Standard Notes databases

Everyone has a minimum set of databases when they install their Notes R4.5 or 4.6 client. Some of these databases get upgraded automatically, and some you will need to upgrade yourself. The details of how the databases are migrated are as follows:

- Favorites

You will most likely discontinue using this database in favor of using R5 bookmarks. Databases that you commonly use should be kept in the Favorites folder in your bookmark bar.

- Personal Name and Address Book

Notes automatically upgrades your Personal Name and Address Book to the R5 design. If you have Internet mail set up to work with POP3, Notes creates an Account record for that Internet mail configuration. See Chapter 18, “Personal Name and Address Book.” For those interested in the specific design elements updated in your Personal Name and Address Book, refer to the product documentation *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

- Journal

The R4 Personal Journal template has not been changed. You will not be required to take any actions.

- Personal Web navigator

The design of this database will automatically be upgraded as part of the upgrade process.

- Your mail file

Your mail template will not automatically be upgraded when you upgrade your client to R5.

Important You should not upgrade your mail template until you have reviewed the considerations for upgrading it in Chapter 6, “Rollout considerations for upgrading to R5.”

Once you have reviewed these considerations, your mail template can be upgraded to take advantage of the new R5 functionality and look. To do so, you can use one of the following methods:

- The user chooses File - Database - Replace Design, and then selects Mail (R5.0) from the list of available templates. This can be done locally, since the template is provided either in the client or from the server.
- The administrator runs the “convert server” command against a user mail file. Refer to the product documentation *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

Note If your company has customized the R5 mail template, then most likely it has been renamed. You will need to replace the design from the modified template on your server, rather than using the generic mail template that was previously provided. It is advisable to remove or replace the template with your company’s customized mail template on both the server and client to eliminate confusion.

You should review any other local databases that use the Lotus-provided templates on your workstation and determine whether their designs should be upgraded. You should not update any templates that reside on the server until you understand how those changes will impact other users of that database.

Synchronizing time zones and daylight savings time with Notes

The following information is an excerpt from the product documentation *Moving to Notes and Domino Release 5*, Lotus part number CT6E3NA.

In R5, Notes and the client operating system synchronize the time zone and daylight savings time settings. When you start Notes, the client synchronizes the operating system settings to match those of the current Notes location. In previous releases, Notes synchronizes only the operating system time, which could cause the operating system clock to be out of synch with the operating time zone setting.

Be sure that the time zone, daylight savings time, and Greenwich Mean Time (GMT) are correctly set on your operating system. For example, if the operating system does not have daylight savings time activated and you manually change your clock to account for it, running Notes turns on daylight savings time in the operating system, causing the operating system clock to be off by one hour.

The list of time zones and the start and end dates for daylight savings time in Notes Location documents match those of the Windows operating system. If you change to a location with different settings, those settings will update the Windows time zone and daylight savings time. If you change the Windows time zone or daylight savings time settings while Notes is running, Notes updates those settings for the current location.

Summary

This chapter covered aspects relating to the installation of the Notes R5 client.

The InstallShield program that R5 uses allows you to easily select the clients that you require on your workstation. Once the code is installed on your workstation and you sign on to R5 for the first time, little further action is required. Your R4 workspace and associated databases are automatically upgraded to bookmarks.

A new R5 interface is provided that is similar to a browser. You will immediately be able to take advantage of many of the navigational enhancements described in Chapter 1, “Ease of using the Notes R5 client.”

Chapter 15

Mail

In this chapter, we discuss the mail features available in the R5 mail template. Calendaring and Scheduling features are discussed in Chapter 16, “Calendaring and Scheduling,” and to do lists are discussed in Chapter 17, “to do lists.”

It is important to note that you will need to update the design of your mail database with the R5 mail template in order to see the features described in this chapter. This is not automatically done as part of the upgrade process when you move your Notes client to R5. Be sure to read about the coexistence issues with Release 4.5 and 4.6 before you upgrade your mail template. They are discussed in Chapter 6, “Rollout considerations for upgrading to R5.”

The target audience for this chapter is end users familiar with the latest 4.5 or 4.6 mail template functionality, your company’s mail template application developers if they do local customization of your mail template, educators, and help desk personnel.

This chapter takes a closer look at the following topics:

- Mail integration and standards
- Navigation
- Views and folders within your mail
- New or modified actions
- Forms and actions
- Public folders
- Soft deletions
- Sametime Connect integration with mail
- Summary

Mail integration and standards

Notes embraces Internet messaging standards, so now you can view Internet mail messages, Web pages, and newsgroups with full fidelity, thanks to the added MIME and HTML support in R5. R5 also supports Secure Sockets Layer (SSL), Secure MIME (S/MIME) and X.509 certificates for a more secure environment. These are discussed in more detail in Chapter 11, “Security,” and Chapter 9, “Messaging.”

In R5, with the configuration of accounts, you can use your Notes mail to receive both your company’s Notes mail and your personal mail. This is discussed in Chapter 18, “Personal Name and Address Book.”

In today’s world, many people have an Internet Service Provider (ISP) to access their mail via POP or IMAP. The integrated mailbox then becomes a central place to look at all of your mail. Of course, if your company is migrating from either IMAP or POP to Notes, you can now ease the transition; if your company did not provide you with a Notes mail file, you could use your R5 client to access company mail via POP or IMAP, whether or not it resides on a Domino server. A large number of combinations of mail can now be configured in R5. This chapter discusses only mail that resides in a Notes mail database that uses the R5 mail template.

Notes now registers itself as the default mail application and uses the message application programming interface (MAPI). This allows Notes R5 messaging to be integrated within products such as MS Office and MS Internet Explorer, so that Notes is launched as the mail client from this type of application.

Navigation

After you have replaced your design with the R5 mail template, you will immediately notice that the template has been changed dramatically. The R5 template now uses a number of features, such as switchers, drop-down action-bar menus, and the scrollable action bar.

You can access your mail in several ways in R5. To open your mail database, use one of the following methods:

- Click the Mail hotspot on your Welcome page.
- Click the Mail icon on your bookmark bar.

- Click your mail database which will reside in your Databases folder.
- Click the mail icon on the bottom right corner, then select Open Mail.
- From the menu bar, choose File - Database - Open and select your mail database.

The first three methods either are new or take the place of selecting the mail icon on your Notes 4.x workspace.

When you are in your mail, you can easily navigate to your calendar or to do's by using the switcher and selecting the appropriate icon. The switcher is located on the bottom of your left frame and is discussed in Chapter 1, "Ease of using the Notes R5 client."

Views and folders within your mail

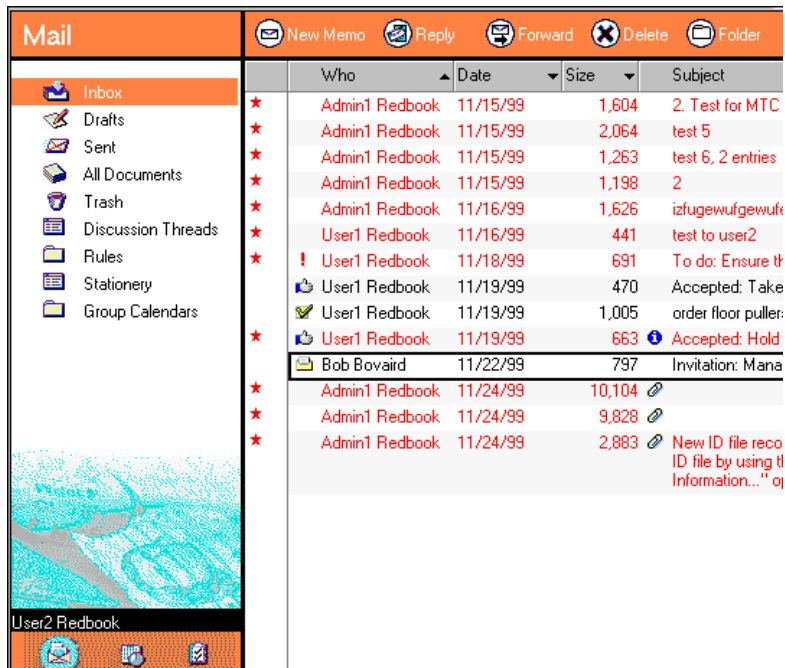
In R5, you will see the following views and folders:

- Inbox
- Drafts
- Sent
- All Documents
- Trash
- Discussion Threads
- Rules
- Stationery
- Group Calendars

The purpose of the Inbox, Drafts, Sent, All Documents, Trash, and Discussion Threads has remained unchanged, however, a number of changes have been made to the actions you can perform within these views and folders.

Inbox

A size column has been added to the Inbox folder. This column should help you identify large documents for either archiving or deletion. You can optionally sort by size all of the documents within that view by selecting the Size column header.



Actions

The R5 inbox fully utilizes action bar drop-down menus. The actions invoked by the buttons on the action bar are discussed in Chapter 1, “Ease of using the Notes R5 client.” The same actions are available by choosing Action on the menu bar. In Release 4.5, many of these actions required you to make a menu selection, and then make another selection to accomplish an action. In R5, you can specify an action by selecting the appropriate pull-down menu option in a single step. The following actions are available on the action bar while in the Inbox folder:

- New Memo
- Reply
 - Reply
 - Reply with History
 - Reply to All

Previously, this required you to first select Reply, then Reply All

- Reply to All with History

Previously, this required you to first select Reply with History, then Reply All

- Forward

- Delete
- Folder
 - Create Folder
Previously only available from the Actions menu
 - Move To Folder
 - Remove From Folder
Previously only available from the Actions menu
- Copy Into
 - New Memo
Previously only available from the Actions menu
 - New Calendar Entry
Previously only available from the Actions menu
 - New to do
Previously only available from the Actions menu as Copy Into - New Task
- Tools
 - Preferences
A new R5 option; it is discussed later in this chapter
 - Out of Office
Previously accessed by choosing Actions - Mail Tools - Out of Office
 - Add Sender to Address Book
Previously accessed by choosing Actions - Mail Tools - Add Sender to Address Book
 - New Memo - Using Stationery
Previously required you to switch to the Drafts view

Drafts

In Release 4.5 and 4.6, the Drafts view performed as a holding location for both drafts and stationery documents. In R5, only Draft documents are stored in this view. See the Stationery view section later in this chapter for information on stationery documents.

Actions

More actions can be performed on documents within this view via the action bar than is the case in Release 4.5 or 4.6. The following actions are available in the R5 Drafts view:

- New Memo
- Forward
 - Previously only available from the Actions menu
- Edit
 - Replaces the action previously called Edit Document
- Delete
- Folder
 - Create Folder
 - Previously only available from the Actions menu
 - Move To Folder
 - Previously only available from the Actions menu
- Copy Into
 - New Memo
 - Previously only available from the Actions menu
 - New Calendar Entry
 - Previously only available from the Actions menu
 - New to do
 - Previously only available from the Actions menu
- Tools
 - Preferences
 - A new R5 option; discussed later in this chapter
 - Out of Office
 - Previously accessed by choosing Actions - Mail Tools - Out of Office
 - Add Sender to Address Book
 - Previously accessed by choosing Actions - Mail Tools - Add Sender to Address Book
 - New Memo - Using Stationery
 - Previously required you to first create the stationery using the New Memo form, then make several menu selections to save it as stationery.

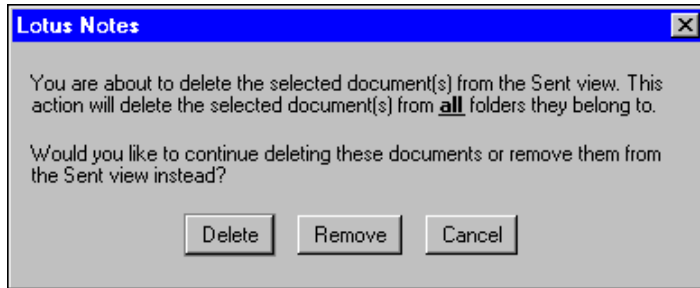
Sent

Actions

More actions are now available on the action bar for this view than was the case in Release 4.5 or 4.6. Some of these actions were only available under the Actions menu.

- New Memo
- Forward
- Delete
- Folder
 - Create Folder
Previously only available from the Actions menu
 - Move To Folder
- Copy Into
 - New Memo
Previously only available from the Actions menu
 - New Calendar Entry
Previously only available from the Actions menu
 - New to do
Previously only available from the Actions menu
- Tools
 - Preferences
A new R5 option; discussed in the Actions section later in this chapter
 - Out of Office
Previously accessed by choosing Actions - Mail Tools - Out of Office
 - Add Sender to Address Book
Previously accessed by choosing Actions - Mail Tools - Add Sender to Address Book
 - New Memo - Using Stationery
Previously required you to first create the stationery using the New Memo form, then make several menu selections to save it as stationery
 - Send Tracking Request
 - A new R5 feature; described later in this chapter

Note If you delete a document from the Sent view, you are deleting it from all views and folders. This was not obvious to most users in Release 4.5 and 4.6. With R5, you now get a warning, shown below, giving you the opportunity to confirm the deletion of the document from all folders and views or the choice to remove it from the Sent view only.



Note This feature only applies to the Sent view. If you attempt to delete a document from the All Documents view, you will not get a similar warning.

All Documents

A size column has been added to the All documents view. This column should help you identify large documents for either archiving or deletion. In addition, you can sort by size all of the documents within the view by clicking the Size column header.

Actions

Following the theme of providing you with as many actions as possible, as directly as possible, on the action bar, the All Documents view has the same actions as the Inbox folder with one exception:

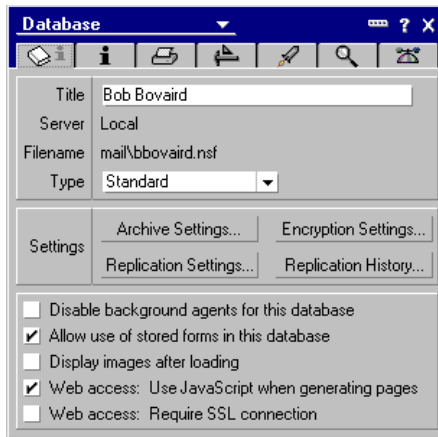
- Send Tracking Request is available by clicking Tools on the action bar or by choosing Actions - Tools on the menu bar.

Archive

Archiving has been enhanced in R5. Archiving can be performed on any R5 database and can be controlled through settings in Database Properties. You can access your archive settings in three ways. They are:

- From the menu bar, choose Actions - Archive - Settings.
- From the menu bar, choose File - Database - Properties and click the Archive Settings button.
- Select the Properties icon and switch to the Properties for Database, and then click the Archive Settings button.

Note Manager access is required to save changes made to the Archive Settings.

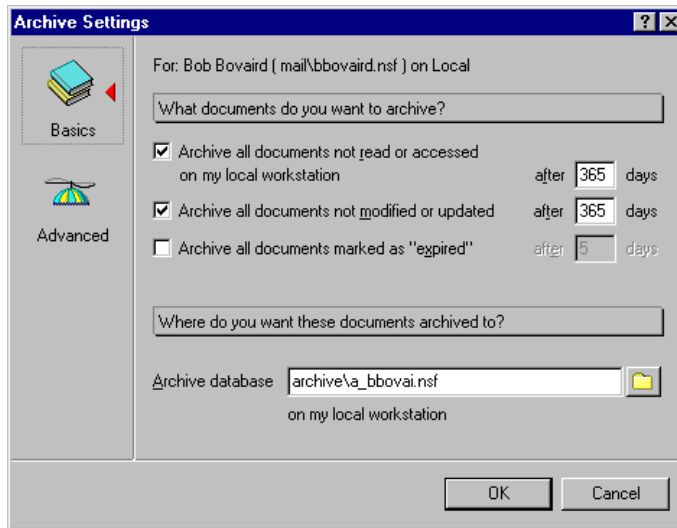


Once you have upgraded your mail template to R5, if you attempt to switch to the archive database, you will receive a message that looks similar to this: File does not exist: archive\a_bbovai.nsf. This was the default filename set up by Notes, and it is automatically specified when you select the Archive Settings from the Database Properties box for the first time.

From the Archive Settings dialog box, you can control which documents you want to archive. Make your archive selections from among the following options:

- Archive all documents not read or accessed on my local workstation after xxx days
- Archive all documents not modified or updated after xxx days
- Archive all documents marked as expired after xxx days

You can change the file name of your local archive in the same dialog box.



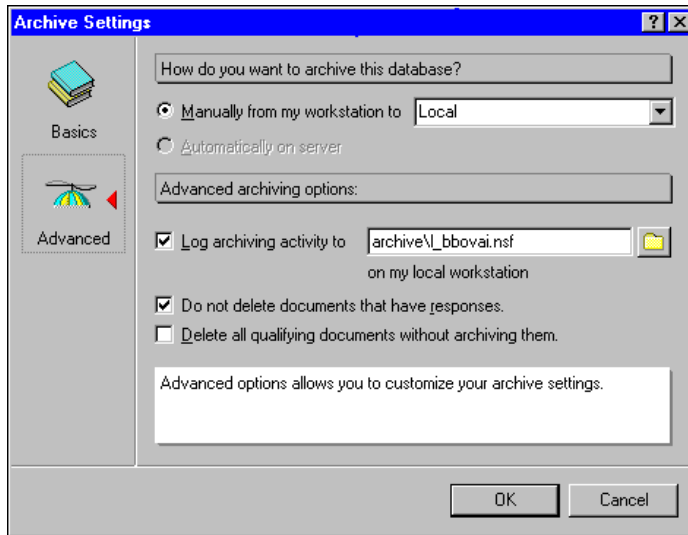
The next figure shows the dialog box for the Advanced portion of Archive Settings. Here you can make additional choices concerning archiving.

You can change the setting to archive manually from your workstation to either your local archive or an archive that resides on a server. An administrator must place an archive file on a server for you, or give you the ability to do so, if you want to archive to the server.

You can also specify a database to store log information. You can view the log from the menu bar by choosing Actions - Archive - Open Log.

Additional archive actions you can choose are:

- Do not delete documents that have responses
- Delete all qualifying documents without archiving them



Once you have defined the settings for your archive, create the archive by choosing Actions - Archive - Archive Now. This will also archive any documents that fell into the specified date criteria and archive them at that specific time.

If you have a local replica of your mail, you can automate when archiving will take place. Do this by choosing Actions - Archive - Enable Local Scheduled Archiving.

To manually select particular documents to archive, click the title of each document to place a checkmark next to it. When all documents of interest have been selected, click Actions - Archive - Selected Documents. You will see a pop-up box that asks you if you would like to archive x number of documents at this time. Click OK to archive the documents.

Since you have never opened your archive, you will not have a bookmark for it. To create a bookmark for your local archive, choose File - Database - Open, change the archive folder, and then select your archive database. It will be listed with a name of "firstname lastname (Archive)."

A powerful feature of R5 archiving is that it understands which folder a document came from. It will place that document in the same folder in your archive. Therefore, if you have a document in a folder called Project, when you archive it, it will remain in the Project folder in your local archive.

If you archive a document from your mail or another database into your archive, and the archive does not have the correct folder, it will create one for you automatically. If you are already in your archive, and you do not see that folder, exit your archive and reopen it to refresh the folder listing.

Trash

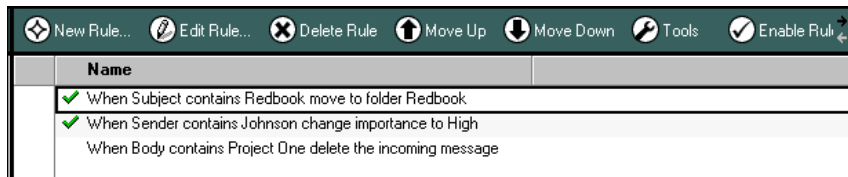
No changes have been made to either the view or the actions you can take on items in your trash folder.

Discussion threads

The number of actions available on the action bar has also increased in the Discussion Threads view. The actions that can be performed are identical to those found in the Inbox folder.

Rules

The rules folder is new to R5. You can define new rules which will have Notes act automatically on new messages you receive that meet certain conditions. You can define any number of rules, and you can control the order by which the rules run. You can enable or disable your rules by using the action bar buttons on the Actions menu.



When creating a new rule, first define which field you want to base this rule on. Fields that you can select are:

- Sender
- Subject
- Body
- Importance
- Delivery priority

Then specify a condition; conditions that you can select include:

- Contains
- Does not contain
- Is
- Is not

Enter a word or phrase to complete the condition.

Next, specify the action that you want performed when the condition is met:

- Move to folder
- Copy to folder
- Change importance to
- Delete

For example, you can set a rule that if the subject of a mail item contains the words Project One, then move the message to a folder called Project One.

You can also create complex rules, by specifying more than one condition or action.

New Rule

This rule is: ☒ On ☐ Off

Specify Conditions

Create: ☒ Condition ☐ Exception

AND subject contains Project One

When mail messages arrive that meet these conditions:

When:
Subject contains Project One

Add
Remove
Remove All

Specify Actions

move to folder Project One

Select...

Perform the following actions:
move to folder Project One

Add Action
Remove
Remove All

OK Cancel

Rules to filter spam mail

You can set up some simple mail rules to filter “spam” mail:

- From individuals
- From entire Internet domains
- Based on words in the body or subject of the message

There are several pertinent articles about this topic on the Web at:

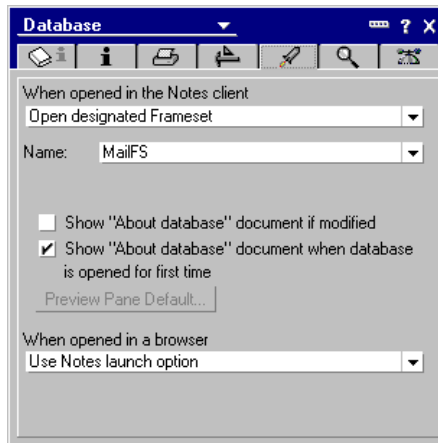
<http://www.notes.net/today.nsf/>

This site also describes techniques for using agents instead of rules to filter spam.

What if I don't have a Rules folder?

If you are using Notes R5, but you don't see a Rules folder in your mail database, you will probably need to update the design of your mail database to the Mail (R5.0) template design. If your mail database does have the Mail (R5.0) design, but you still can't see your Rules folder, check the database properties using the following steps:

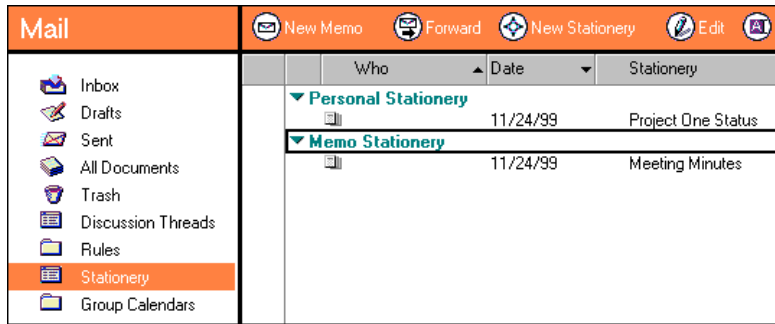
1. In your mail database, choose File - Database - Properties, or click the Properties icon.
2. Click the Launch tab.
3. Ensure the "When opened in the Notes client" option is set to "Open designated Frameset" and the Name option is set to "MailFS."
4. Close and reopen your mail database. You should now see the Rules folder.



Stationery view

The stationery function was available in Release 4.5 and 4.6, but it resided within the Drafts view. In R5, Stationery documents are now stored in a dedicated view. All actions that you previously performed relative to creating and maintain stationery can now be done within this view. Stationery is sorted by categories. They include:

- Personal Stationery
- Memo Stationery



Both types of stationery existed in Release 4.5 and 4.6; however, creating the stationery is now a more intuitive process. In Release 4.5 or 4.6, you chose Actions - Mail Tools - Create Stationery and then chose the type of stationery you wanted. In R5, you merely select New Stationery from the action bar, select the type of stationery you want, fill in the appropriate addressee, subject and body text, then save it. To use the stationery, simply select the document in the appropriate category.

Actions

The actions available on the action bar are as follows:

- New Memo
 - New Memo
 - New Memo - Using Stationery

In Release 4.5 or 4.6, this action meant changing to the Drafts view, highlighting the appropriate stationery, and then selecting Use Stationery from the action bar or menu. In R5, when an action is selected a pop-up box is displayed, which lists all of the stationery that is available.
- Forward

This action was previously only available from the Actions menu.
- New Stationery
 - Memo Stationery

This previously required you to choose Actions - Mail Tools - Create Stationery and then select Memo.
 - Personal Stationery

This previously required you to choose Actions - Mail Tools - Create Stationery and then select Personal Stationery.
- Edit

- This was previously called Edit Document.
- Rename Stationery
- Delete
- Tools

- Preferences

This is a new R5 option; it is discussed later in the chapter.

- Out of Office

Previously accessed by selecting Actions - Mail Tools - Out of Office.

Group calendars

The purpose of this view is discussed in detail in Chapter 16, “Calendar and scheduling.”

New or modified actions

A number of new or significantly changed actions have been introduced in R5. They were briefly mentioned earlier in this chapter. This section presents a detailed discussion of some of these actions, specifically:

- Add sender to address book
- Out of office
- Preferences
- Send tracking request

Add sender to address book

Pop-up boxes that appear when you attempt to add a sender to your Personal Name and Address Book (PNAB) let you tailor the information about the sender.

The screenshot shows the 'Add sender to address book' dialog box with the 'Basics' tab selected. The dialog has a title bar with a close button. Below the title bar is a decorative banner. To the right of the banner are 'OK' and 'Cancel' buttons. The main area contains the following fields:

- Title: A dropdown menu showing 'None'.
- First name: A text box containing 'Admin1'.
- Middle name: An empty text box.
- Last name: A text box containing 'Redbook'.
- Suffix: A dropdown menu showing '-None-'.

You can even tailor the mail system, the e-mail address, the routing domains and whether to include the X.509 certificate.

The screenshot shows the 'Add sender to address book' dialog box with the 'Advanced' tab selected. The dialog has a title bar with a close button. Below the title bar is a decorative banner. To the right of the banner are 'OK' and 'Cancel' buttons. The main area contains the following fields:

- Mail system: A dropdown menu showing 'Lotus Notes'.
- E Mail address: A text box containing 'Admin1 Redbook/IBM'.
- Routing domain(s): An empty text box.
- ☒ Include X.509 certificates when encountered

If you attempt to add a person who already exists in your PNAB, you now can choose to skip that person or update your existing entry. You can also tailor some of the information.

Add sender to address book

This entry is already in your addressbook
☒ Skip ☐ Update

OK Cancel

Basics **Advanced**

Title:

First name:

Middle name:

Last name:

Suffix:

Under the Advanced tab, in R5, you can now easily update e-mail addressing information or even the X.509 certificate for a user when it has been sent.

Add sender to address book

This entry is already in your addressbook
☒ Skip ☐ Update

OK Cancel

Basics Advanced

Mail system:

EMail address:

Routing domain(s):

☒ Include X.509 certificates when encountered

Out of office

The Out of office feature now uses tabbed tables to enter information. Tabs provided in this interface are as follows:

- Dates
- Out of Office Message
- Special Message
- Exceptions

A new option to Out of Office now appears on the Options tab. It allows you to automatically book busy time for the dates that you specify you are out of the office. This is done by default.

Out of Office

Notes can automatically reply to incoming mail while you are away. To use the Out of Office agent, fill out the dates you will be gone, and press "Enable".

Dates | Out of Office Message | Special Message | Exceptions

I will be out of the office...

Leaving: [Date Picker]

Returning: [Date Picker]

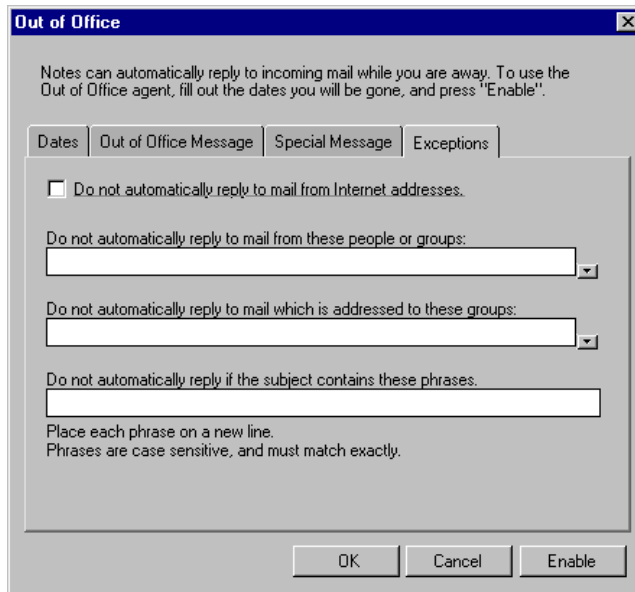
☒ Book Busytime for these dates

People who check your calendar will see that you are unavailable between these dates.

OK Cancel Enable

A number of new options are now available on the Exceptions tab that replace a generic 4.5 and 4.6 option called "People/groups who should not receive any messages." In R5, you now have the following options:

- A check box - Do not automatically reply to mail from Internet addresses
- Do not automatically reply to mail from these people or groups
- Do not automatically reply to mail which is addressed to these groups
- Do not automatically reply if the subject contains these phrases



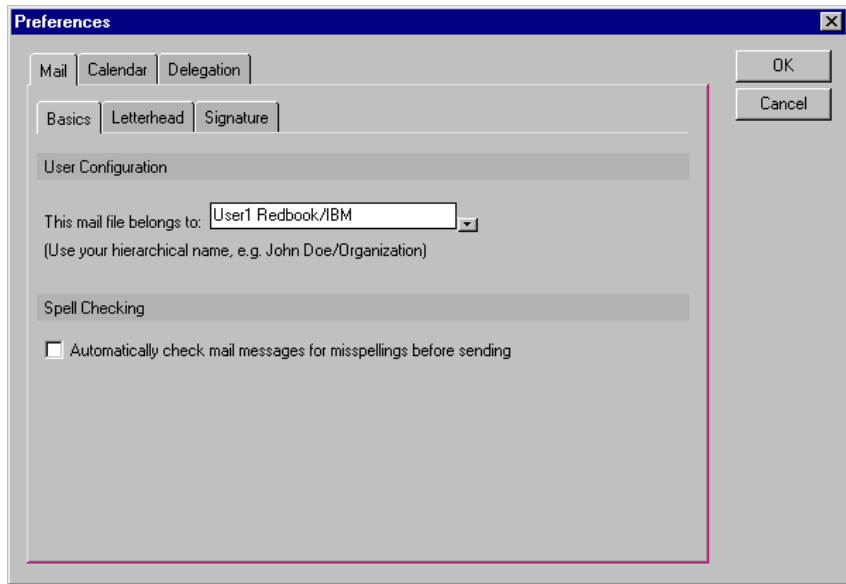
Preferences

Preferences are settings which will prevent you from performing actions continuously. When you choose Tools - Preferences, you default to the mail tab. Under the mail tab are three additional tabs. They are:

- Basics
- Letterhead
- Signature

Basics

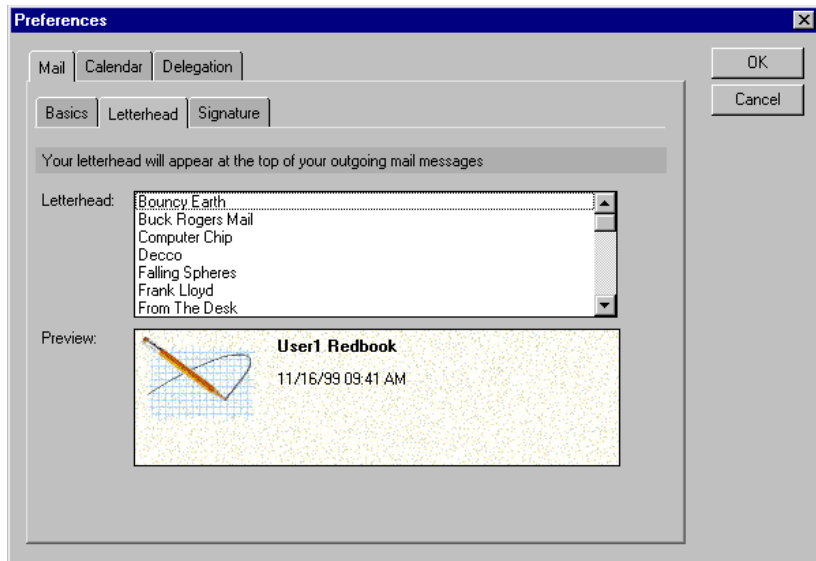
“This mail file belongs to” was previously specified in the Mail Tools, Delegation Profile in Release 4.5 and 4.6. A new feature has been added to R5 which will allow you to automatically spell check mail messages for misspellings before sending. When you send a message, you will be automatically brought into the spell checker, and it will find misspelled words. When all words are spelled properly the message is sent. In Release 4.5 and 4.6, if you want the spelling in a message checked, you have to select the spell checker from the SmartIcons toolbar for each memo you want checked.



Note Spell checking in R5 no longer spell checks the header region of an e-mail.

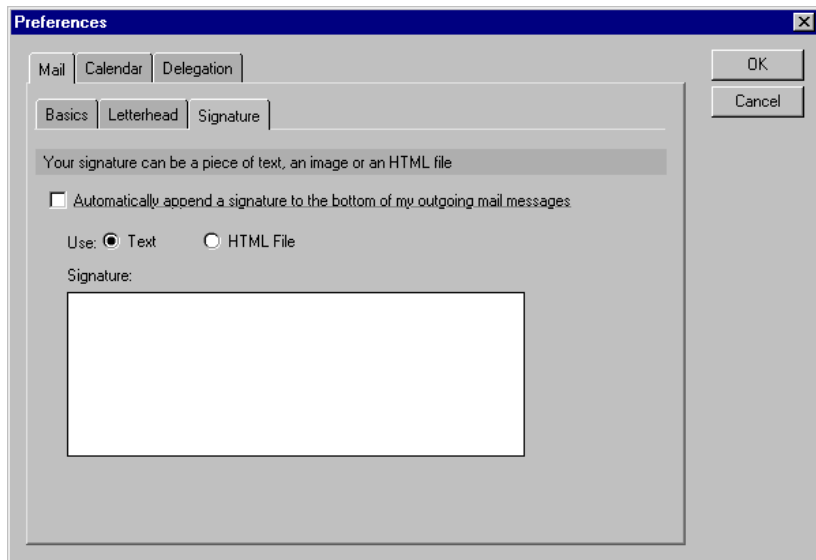
Letterhead

On the letterhead tab, you can select the letterhead you want sent with your mail. This is similar to the Choose Letterhead functionality in the previous releases of Notes, except that some of the letterhead designs have changed and the format of the information, for the first time, is consistent. The user's name, the date, and time is displayed in the exact same format for all letterheads.



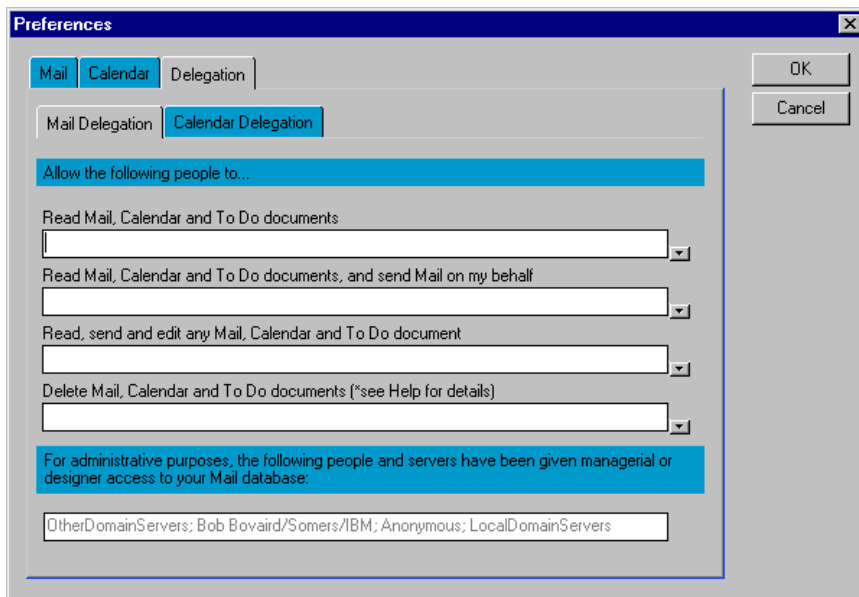
Signature

R5 has incorporated a new feature called “Signature.” Click this tab to specify a signature, or a mail closing. When this feature is set, all memos that you send out will contain the text information or HTML file that you specify in this dialog box, on the bottom of your memos. If you do not select the check box, you can optionally create a message and, from the Tools action bar or menu, insert the signature that you have configured in this preference.



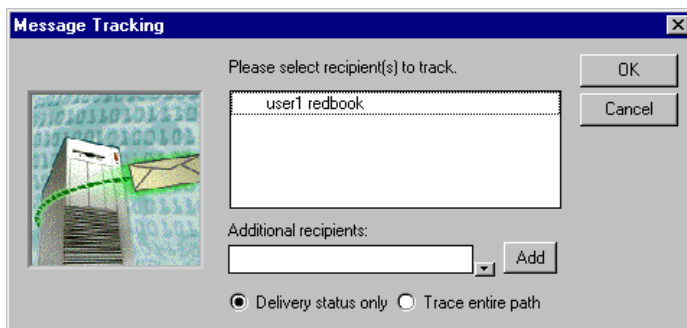
Delegation - Mail Delegation

One other preference can be set for mail. It is also found under the Tools Preference, but on the Delegation tab. The information on this preference is similar to the information that you got when you selected Mail Tools - Delegation Profile in Release 4.5 and 4.6.

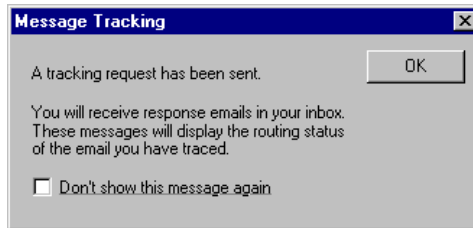


Send tracking request

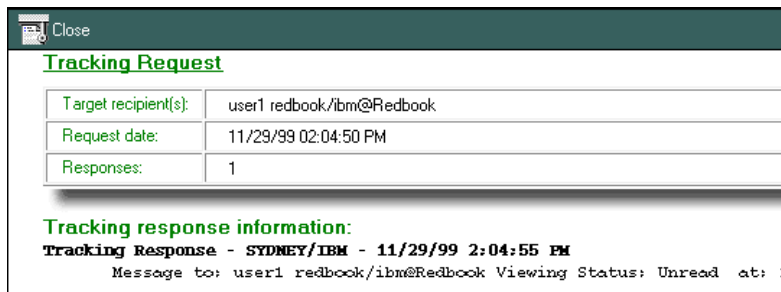
For messages that you have sent, you can send a tracking request. A tracking request can tell you whether the recipient has read the note, or it can ensure that it has arrived at the destination server. To use message tracking, an administrator must enable this feature on your R5 server. If an R4 server is involved in the routing between you and the recipient, the tracking will stop at the R4 server.



You can track one or more of the recipients that you originally sent a message to. Once you click OK in the message tracking box, you will get another pop-up box informing you that the tracking message has been sent. You will receive response e-mails in your inbox. These messages will display the routing status of the e-mail you have traced. The tracking information that you receive is more comprehensive than that of Delivery Options.



When you track a message, you will receive a status message in your inbox as of that point in time. Tracking messages are not dynamic. If the message you receive is not the desired one (for example, if the person has not yet read the memo), you will need to issue another mail tracking request at a later time.



Serial Route Memo

This Release 4.5 and 4.6 feature is not available in the R5.02 build.

Forms and actions

A number of changes have been made to the mailable forms and the actions you can take on them. Mailable forms include New Memo, Reply, Reply with History, Reply to All, and Reply to All with History. When you are in any of these forms, you will see the following R5 enhancements in the form itself:

- Scrollable addressee lines
- Type-ahead addressing

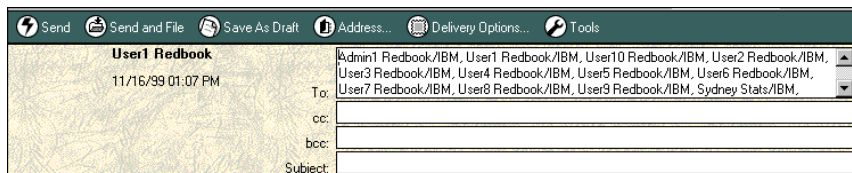
The following action bar buttons are available in all mailable forms:

- Send
- Send and File
- Save as Draft
- Address
- Delivery options
- Tools
 - Insert Signature
 - Save as Stationery

This section describes these features in detail.

Scrollable addressee lines

All of the mailable forms in R5 are now aware of the number of addresses you have entered in the To, cc, and bcc fields. Once you either address, or resolve to address, more than three lines of recipients, you will notice that the field becomes scrollable.



The screenshot shows a mailable form interface. At the top is a dark green action bar with icons and labels for 'Send', 'Send and File', 'Save As Draft', 'Address...', 'Delivery Options...', and 'Tools'. Below this, the form is divided into two main sections. The left section has a yellow background with a floral pattern and contains the text 'User1 Redbook' and '11/16/99 01:07 PM'. The right section has a white background and contains a 'To:' field with a scrollable list of ten email addresses: 'Admin1 Redbook/IBM, User1 Redbook/IBM, User10 Redbook/IBM, User2 Redbook/IBM, User3 Redbook/IBM, User4 Redbook/IBM, User5 Redbook/IBM, User6 Redbook/IBM, User7 Redbook/IBM, User8 Redbook/IBM, User9 Redbook/IBM, Sydney Stats/IBM,'. Below the 'To:' field are empty fields for 'cc:', 'bcc:', and 'Subject:'.

This is even more useful when you as a recipient view the message. You will no longer need to scroll down pages to get to the body of the memo, if the sender sent e-mail to a mass mailing list.

Type-ahead addressing

Type-ahead addressing in R5 now provides the ability to use the down arrow and up arrow key to cycle through addresses in the address dialog. This feature works with cascaded Personal Address Books and Mobile Directory Catalogs and is particularly useful if you do not know the exact spelling of the name. When the personal, then public, address book is selected in your Location document, type-ahead reverts to the old behavior of waiting a second before engaging and not allowing type down. Type-ahead only becomes active if the caret is at the end of the names field or just before a delimiter.

Type-ahead addressing is not new to R5; however, how it resolves the names has changed.

According to the 5.02 Release Notes, type-ahead now favors your personal address book. Type-ahead behavior has been modified in R5 to favor, in the following order:

1. A match in the personal NAB that has a matching organization to the current user
2. A match in the personal NAB
3. A match outside the personal NAB that has a matching organization to the current user
4. The first match

Send, Send and File, Save as Draft

These actions have not been changed from Release 4.5 or 4.6.

Address

The Address action on your action bar or pull-down menu has always allowed you to select addresses from your personal name and address book, or depending on your current location document, settings from address books that reside on your server.

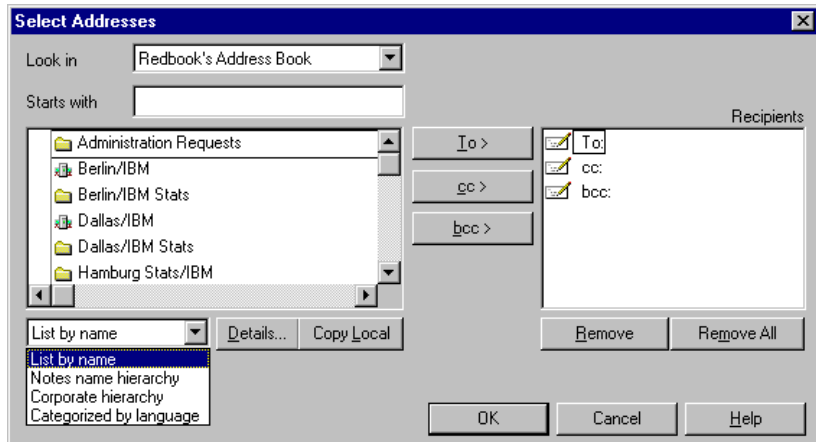
In R5, this has been enhanced to allow you to select addresses in directories accessible over lightweight directory access protocol (LDAP). Those directories will be listed under the <searchable>..... Line in the Look in line in the Select Addresses dialog box. See Chapter 19, "Using new R5 features," for more information.

In R5, when you select a Notes name and address book, they can now be sorted the following ways:

- List by name
- Notes name hierarchy

- Corporate hierarchy
- Categorized by language

Note Your administrator will need to make changes to all the Person documents for the Corporate hierarchy to work properly.

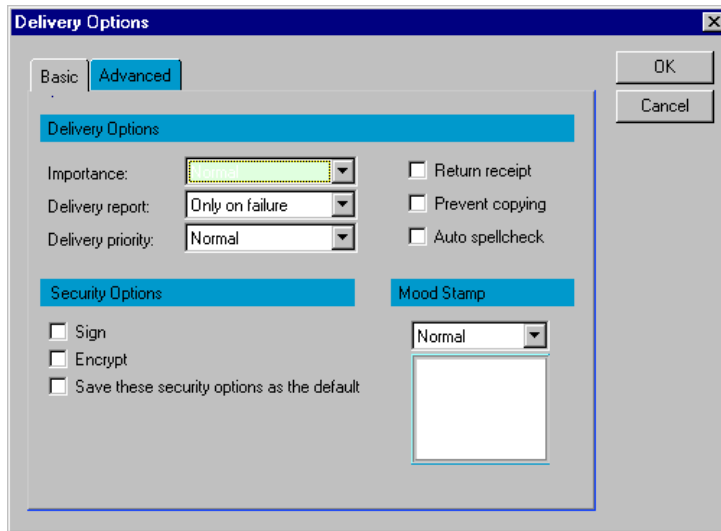


The Details button replaces the Open button found in the Release 4.5 and Release 4.6 address dialog box. All other functions of Select Addresses remain the same.

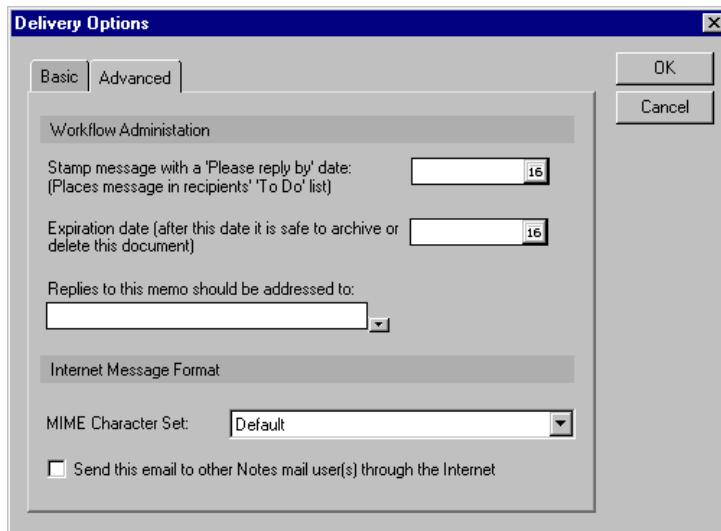
Delivery options

In Release 4.5 and 4.6, there were two actions you could select when sending a memo. Delivery options were available on the action bar and the menu bar; Special Options were only available from the Actions menu, and most people did not even know that it existed.

In R5, when you select Delivery Options, you will see a pop-up that merges the Special Options functionality from previous releases with the standard delivery options. The Delivery Options are now on the Basic tab, while the special options are now available on the Advanced tab.



Two additional delivery options check boxes are available on the Basic tab in R5. You can now specify if you want to Auto spellcheck your mail before it is sent, and you can choose to save particular security options as your default.



Calendar pickers have been added to the top two options on the Advanced tab. They allow you to easily select dates for the 'Please reply by' stamp and the message expiration if you have chosen either of these options. The Internet Message Format drop-down box is also new to R5. You can now specify the MIME character set. In Release 4.5 or 4.6, you could specify the Encoding methods for Internet Mail attachments, but this is no longer required in R5.

For many organizations and individual users, configuration of the international MIME settings is not necessary! The default values for the configuration settings should work in most circumstances. More information on MIME can be found in Chapter 9, “Messaging.”

Tools

Two options are available when you use a mail-enabled form. They are:

- Include Signature
- Save as Stationery

Include Signature

Include Signature allows you to either:

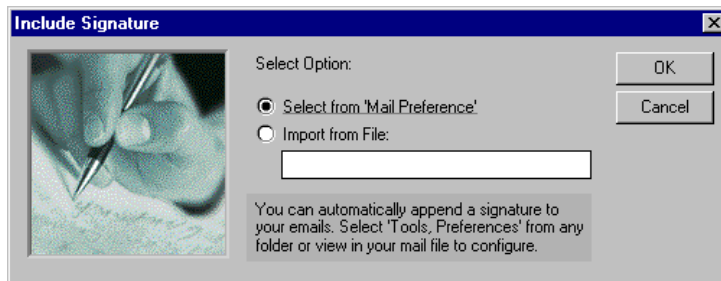
- Select from ‘Mail Preference’
- Import from File

A signature is some file (text, graphics, HTML) that you can put at the end of your memos. For example, you might want to include the following text on all the mail you send:

Thanks, Bob
Project One Coordinator
Red Book Publishing
Southbury CT 06488

You can configure a signature by choosing Tools - Preferences - Signature tab. This can be done from any folder or view in your mail file.

If you select Import a file, a Windows file selection pop-up will appear where you can insert either a text file, an HTML file, or a bitmap.



Save as Stationery

This function is the same as in Release 4.5 or 4.6. You can use this stationery by changing to the Stationery folder.

Additional actions

The following mail actions are available only by choosing the Action menu from the menu bar.

Add Recipients

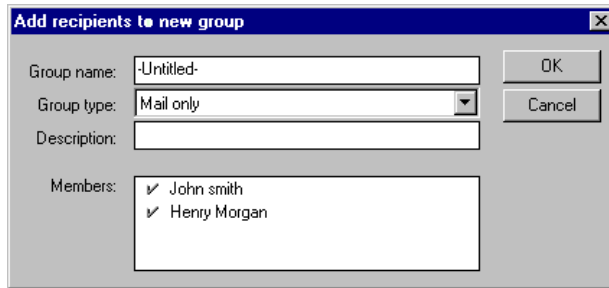
When a document is selected from the view, you can either:

- Add recipients to new Group Calendar Entry

This is discussed in Chapter 16, "Calendaring and Scheduling," in the Group Calendar section.

- Add recipients to a new Group in Address Book

Once selected, you will get a pop-up box where you can customize the title of the Group name, specify the Group type, add a description of the group, and deselect any members you may not want included in that group.

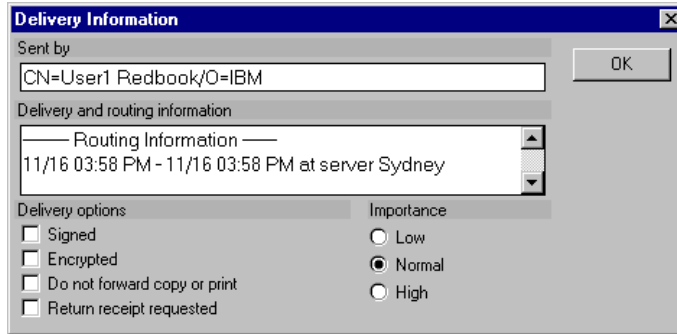
A screenshot of a Windows-style dialog box titled "Add recipients to new group". The dialog has a blue title bar with a close button (X) in the top right corner. Inside the dialog, there are four input fields: "Group name:" with the text "-Untitled-", "Group type:" with a dropdown menu showing "Mail only", "Description:" which is empty, and "Members:" which contains a list of two names: "John smith" and "Henry Morgan", each preceded by a checked checkbox. To the right of the input fields are two buttons: "OK" and "Cancel".

Delivery Information

Delivery information pertains to mail you have received from others. When you have an open document, a new action is available under the Tools action menu. When Delivery information is selected, you will see who sent the memo, along with the delivery and routing information, which is referred to as the SMTP Header information. In addition, the Delivery Information window shows you if the sender selected any of the following options:

- Signed
- Encrypted
- Do not forward copy or print
- Return receipt requested

The importance level is also noted.



Public folders

Over the years, a number of changes have been made to the design of the default folder used when you create a new folder in your mail. When you create a folder, the design of the folder from the current mail template is used, but is never updated.

You may find that actions that are available in newer folders are not available in folders that you created years ago. While the changes over the years have not been all that significant, you will probably quickly notice that all new folders that you create will have the look and feel of R5 and that all of the folders that you created prior to your upgrade to the mail template look like they always did.

Tip No tool is provided in the product to upgrade all of your folders to have the look and feel of R5, however in Appendix D, code has been provided which will go through every folder and rebuild it to implement the R5 design.

Soft deletions

Soft deletions allow you to remove documents from your mail database in a way that they are still recoverable, but no longer clutter up your mail file.

In Release 4.x, when you hit F9 or exit your mail, you are prompted to confirm deletion of any documents marked for deletion while you were working with your mail. Once you answer Yes to the prompt “Do you want to permanently delete x documents that are currently in the trash folder of your mail file,” those documents are permanently removed from your mail file and cannot be recovered.

If soft deletions are enabled, when you get that prompt, all documents will be moved from the trash folder to the Soft Deletions view. Documents will remain in that view for the period specified in the database properties, or until you change to the Soft Deletions view and permanently remove the documents.

Soft deletions are not enabled by default. Use the following steps to enable soft deletions on your mail file:

- Compact the mail file. This will convert the on-disk structure to ODS 41 or greater. You can review the ODS type by looking on the Information tab in Database Properties.
- Verify that the mail file is using an R5 template.
- Make the following two changes to Database Properties on the Advanced tab:
 - Select “Allow soft deletions.”
 - Set “\$Undelete Expire Time (in hours).” This represents the period of time soft deletion will be valid for recovery.
- Rename the (\$SoftDeletions) view and “Unhide” it using the Designer client. For example, it might be renamed to Soft Deletions.

More information on soft deletions can be found in Chapter 12, “System databases.”

Sametime Connect integration with mail

In Notes R5.0.2 mail, you are now able to see if the sender and other recipients of a mail message are online when you read that message. The feature is only available if you have Sametime Connect installed on your machine and are using a Sametime 1.5 server in your organization. If others are online, you can send them instant messages.

Sametime Connect must be installed for Sametime “Who Is Online” to work. You will see this feature on the Memo, Reply, and Reply with History forms. Specifically, there is a button in the action bar named “Who is Online.” If anyone in the From, To, or cc list is logged on to Sametime Connect, or if they have the “Who is Online” window open, they will appear in the “Who is Online” window. Select a name from this window and click “Message...” to send that person an instant message.

Unlike mail, an instant message appears on a person's computer screen real-time, on top of any other windows the user might have open. You can also send an instant message to everyone in the list who is online by clicking "Message to All..." You will have most of the "Chat" functionality of Sametime, but within your mail file.

Note See Chapter 1, "Ease of using the Notes R5 client," for more information about the Sametime Connect icon on your bookmark bar.

One of the prerequisites for getting the "Who Is Online" button to work is that the Sametime administrator must set up the Sametime server to support "Who is Online." Administrators should see TechNote # 175381, *Sametime Integration in Notes/Domino 5.0.2*

Summary

The R5 mail template adds many new capabilities to your system, as well as making others more directly accessible. The mail template has been rebuilt from the ground up, and the consolidation and reworking of the actions that can be performed in both your views and documents makes your mail much easier to work with.

This chapter covered aspects relating to views and folders, new or modified actions, forms and actions, public folders, soft deletions, and Sametime Connect integration with mail.

Chapter 16

Calendaring and Scheduling

The Calendaring and Scheduling (C&S) function in Notes R5 has been greatly enhanced. Much of the C&S code has been removed from the mail template and incorporated into the base code. Some aspects of the user interface have a similar look and feel to what you have grown accustomed to in Release 4.5 or 4.6, while using some of the new R5 features.

You will not see the features described in this chapter unless you upgrade your mail template to the R5 design. This is not automatically done as part of the Notes client upgrade process.

The target audience for this chapter is end users familiar with the latest 4.5 or 4.6 mail template functionality, mail template application developers if they do local customization, educators, and help desk personnel.

This chapter describes the features of R5 C&S, especially those that have changed from previous releases. It includes detailed descriptions of the following features:

- Navigation
- Views and group calendars
- Calendar entry form
- Meeting workflow improvements
- Calendar preferences
- Resource reservations
- Holidays
- Calendar printing
- Performance enhancements

Navigation

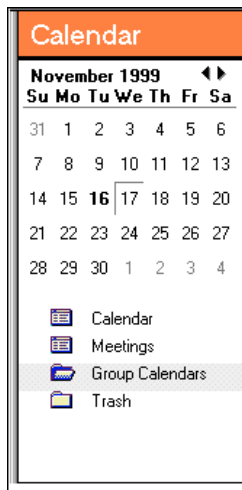
When you open your mail database in Release 4.5 or 4.6, you are brought directly into your mail. To look at or manage your calendar requires you to select the Calendar navigator from the navigation pane on the left side of the screen.

While you can still switch from your mail to your calendar in R5 using a switcher, you can bypass the step by either selecting Calendar directly from the Welcome page, or clicking the calendar icon on your bookmark bar.

All methods used to display your calendar will result in the opening of an additional task. This task will allow you to easily jump between your calendar and other functions, such as your mail. The location and description of the new bookmarks and the switcher are discussed in Chapter 1, “Ease of using the Notes R5 client.”

The calendar user interface has been extensively changed. Your calendar makes use of a new design element called a picker. The calendar picker is a graphic that resides in your left frame. It displays the current month and allows you to select the day of the month you would like to see.

You can also move easily from the current month to another month by selecting either the previous or next navigational arrows in the upper right-hand corner of the calendar picker. The date picker pop-up that was available in Release 4.5 and 4.6 is also available in the main calendar frame in Release 5.



Views and group calendars

Under the calendar picker are icons with which you can switch among the following views:

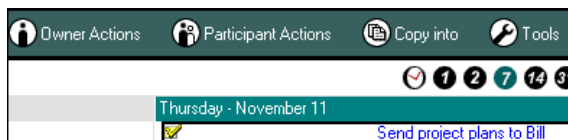
- Calendar
- Meetings
- Group Calendars
- Trash

These views are displayed in your main frame.

Calendar

When you are in the Calendar view, you will notice that some buttons have been added to the top right side of the main frame. From left to right, these buttons are:

- Show time slots — This will toggle between showing time slots and not displaying them at all. In Release 4.5 and 4.6, you could switch time slots on and off for individual days. When you select the time slots action button in R5, it will turn on time slots for all days within the displayed view.
- One day calendar view — this is new to R5.
- Two day calendar view — this is the same as in Release 4.5 and 4.6.
- 7 day calendar view — this replaces the one week calendar view in Release 4.5 and 4.6.
- 14 day calendar view — this replaces the two weeks calendar view in Release 4.5 and 4.6.
- 31 day calendar view — this replaces the one month calendar view in Release 4.5 and 4.6.



In Release 4.5 or 4.6, you could move forward to the next set of days in your calendar by clicking on the folded-over page graphic located on the bottom left and right corners of your main calendar window. This was not very intuitive, so previous and next arrows are now provided to make navigation easier. You can still use the page up and page down keys to scroll forward and back in your calendar, as well. Between the arrows used for scrolling is a sun icon which will bring you to the current day.



You can manage calendar entries by clicking the action bar buttons or accessing the action menus. Your choice of calendar functions is: Schedule a meeting, New, Owner Actions, Participant Actions, Copy Into, and Tools. This differs from Release 4.5 or 4.6, where you must open a calendar document first, before specifying an action.

The actions that you wish to take for a calendar entry are now easier to access in Notes R5; many are available from the action bar drop-down menus. In previous releases, many of the options were not easily found nor intuitive to the end user. R5 gives you easier access to functions, which allows you to manage calendar entries more efficiently.

You will notice that the edit action has been removed. Now, when you open a calendar entry that you own or originated, the calendar document will automatically be opened in edit mode. In 4.5 or 4.6, this was a two-step process.

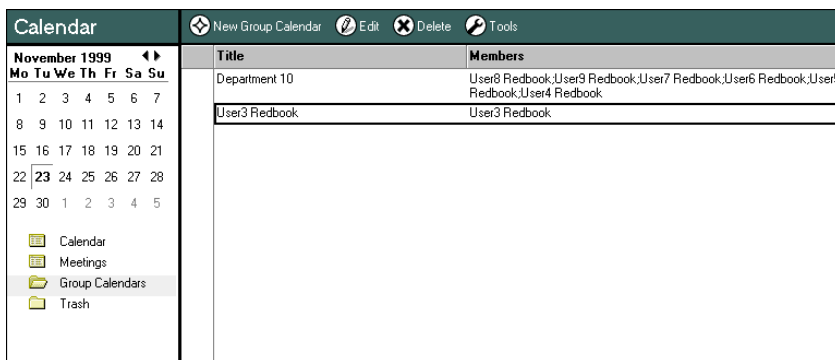
Meetings

The Meetings view has not changed in R5. However, you will need to use the switcher to get to your calendar before you can see this particular view. Previously, meetings was a view associated with your mail, and not a view that you could get to from within your calendar navigator.

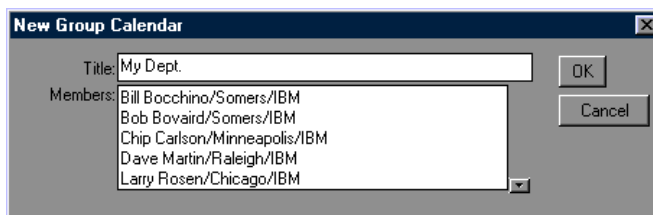
Group calendars

People who manage more than one calendar will find the new group calendars function quite powerful. Group calendars should be used to display those peoples' schedules that you most often need to look at.

A new folder called Group Calendars has been added to your mail file. This folder can be opened from either your mail or your calendar. The group calendar function is similar to the free time dialog box, but it has a significantly different user interface.

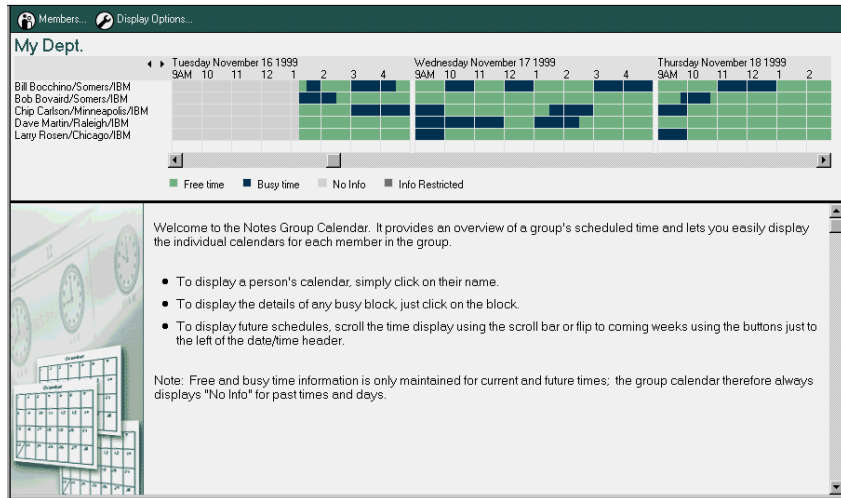


Once you are in the Group Calendar folder, you can create a group calendar document by clicking the New Group Calendar action button or by selecting it from the action menu. You can give your group calendar a title and assign one or more people to that group. You can specify members by either typing their names (using type-ahead to assist you), or clicking the down arrow and looking them up in the Domino directory or personal name and address book.



Once the group is created, you can select that group in the main frame and view the busy time for all members of that group, displayed in a one week view. Busy time starts on the current date and time, and it allows you to scroll forward to display future dates and times. As in previous releases, Notes does not display busy time for dates and times in the past.

The busy time bar displays Free time, Busy time, No information and Information restricted. Information restricted is a new category in R5, which means that others cannot view entries on that portion of the calendar. Information outside of your work hours is considered busy time.



From the group calendar, you can optionally open one or more of the members' calendars by selecting the names in the left-hand column of the busy time row. You will only be able to view a person's calendar if the appropriate level of access has been granted to you to view it and if that person's mail file can be found in a Public Name and Address book on your server.

Note In order for you to be able to open another person's calendar, your server needs to know the name of the other person's mail server and the location of their mail. As long as the other person resides in your domain, you should be able to open it; for those individuals in another domain, the address book would have to be cascaded on your server.

In addition to creating and defining calendar groups manually, you can specify new groups from within your mail database. When viewing a note, you can simply drag and drop the 'Send to' and 'Copy to' fields to the Group Calendars folder and a new group calendar will be created for you automatically, with the note's recipients defined as the members.

Note In Release 4.5 and 4.6, you had a Calendar Tool called Open Another Calendar. In R5, you can either create a group calendar for that person if you constantly view busy time for that individual, or you can just create a bookmark for the calendar view on that person. Creating the bookmark will eliminate the need to select the individual's name because it will open that person's calendar directly.

Trash

The trash view has not changed in R5. The trash view that can be seen from your calendar is also available in your mail and to do's. Mail items, calendar entries and to do's will all appear in the trash view.

Calendar entry form

In Release 4.5 and 4.6, you can create appointments, anniversaries, invitations, reminders, and events. R5 has not introduced any new calendar entry forms; however, invitations has been renamed and is now called meetings.

In Release 4.5 and 4.6, you create a New Entry, then once the New Entry form is opened, you select the type of calendar entry you want to create. In R5, you specify the type of entry directly from the actions menu or action bar buttons. Schedule a Meeting is the first action bar button. This is followed by the New action bar button, which has a drop-down action menu. When this is selected you can choose from the following calendar entry types: Appointment, Anniversary, Reminder, and Events. If you created the wrong calendar entry type, you can change it by selecting the drop-down box on the form.

All of the calendar entry forms use tabbed tables for data entry. The following tabs are available on all calendar entry forms:

- Basics
- Options

When you schedule a meeting, this additional tab will appear:

- Meeting Invitations & Reservations

The functionality you have under these tabs is pretty much the same as you had in Release 4.5 and 4.6, with some exceptions as described in the following sections.

Basics

- What you know as the Brief description area in Release 4.5 and 4.6 has been renamed to Subject in R5. If you enter more than three lines in this field on R5, it will automatically become scrollable.
- In R4.5 and 4.6, you generally add the information about the location of the meeting in the Brief description field. In R5, you have a separate location field in which to enter this information.

Note You should enter the location of your meeting in the Subject field, until you know that all recipients of this meeting invitation are on R5. Release 4.5 and 4.6 will not be able to display the information contained in the location field because this field does not exist in the 4.5 or 4.6 mail templates.

- In Release 4.5 or 4.6, you specify the time range and the date. In R5, you specify both a beginning date and time and an ending date and time. Date and time pickers have been provided next to each of the fields.
 - The end date field will be updated based on the begin date.
 - The end time field will also be updated, based on the default duration set in your calendar preferences.
- Detailed Description has been renamed to Description, but the purpose of this rich text field remains the same.
- When you create an anniversary, the repeat check box will automatically be checked.

The screenshot shows the 'Appointment' dialog box with the 'Options' tab selected. The 'Subject' field contains 'Project One dept meeting', 'Discuss the following:', and 'New employee'. The 'Location' field is empty. The 'Begins' field shows 'Tue 11/23/99' at '02:45 PM'. The 'Ends' field shows 'Tue 11/23/99' at '03:45 PM'. The 'Entry type' is set to 'Appointment'. The 'Repeats' checkbox is unchecked. The 'Description' field is empty.

Options

- Mark Private has replaced the Release 4.5 and 4.6 check box previously called Not for public viewing.
- In Release 4.5 or 4.6, you can set alarms which display a message box prior to your calendar appointment, invitation, event, reminder or anniversary. In R5, you can now additionally play a sound, or send a mail notice when you want to be reminded. To set an alarm for a calendar entry, click on the Options tab, then check Notify me.
- You can now categorize a calendar entry. (In our experience, none of the provided views sort by category.)

Save and Close

Calendar Entry:
Appointment

Basics Options

☐ Pencil In Time will appear free to others.

☐ Mark Private Others cannot see any details about this event.

☐ Notify me Have Notes notify you before the event.

Categorize:

Description:

Meeting invitations and reservations

- You can now optionally blind carbon copy people on meeting invitations.
- In Release 4.5 and 4.6, you have three buttons under the reservations section: Reserve Specific Rooms, Find Specific Rooms, and Reserve Resources.

In R5, pickers have been placed next to the Reserve rooms and Reserve resources fields. The dialog boxes which are displayed when you select one of these pickers have been enhanced and now allow you to select more than one room or resource.

You can also search rooms based on the number of attendees, and Resources can be searched based on a category. Categories must be specified by an administrator for the resources. Resources and rooms can be categorized as public or private, and they can now also be owned by different people.

Scheduler

Search an available room at a specific time

OK Cancel

Date: Today 16

Start at: 11:00 AM

End at: 12:00 PM

Address Books: Redbook's Address Book

Site:

of attendees: 1

Search

Search results:

- In R5, you must select the Scheduler drop-down action bar button or action menu to access Find Rooms and Find Resources.

Calendar Entry:
Meeting

Basics | Meeting Invitations & Reservations | Options

Invite:

cc (optional):

bcc (FYI only):

Reserve rooms:

Reserve resources:

- The Find Freetime button has been removed from the form. In R5, to perform the same action, you will need to select from the Scheduler on the action bar or action menu, and select Check all schedules.
- The Free Time dialog box has been enhanced in R5. In Release 4.5 and 4.6, you can look at free time by day and by person. In R5, by day has been renamed to All by Week and by person has been renamed to All by Invitee. In R5 you can additionally view free time by the following methods:
 - By Can Attend
 - By Cannot Attend
 - By Not Found

Free Time

Date: 11/23/99 Time: 01:45 PM - 02:45 PM

Scheduled time is NOT OK for everyone.

Requested: 2
Found: 2
Can Attend: 0

Recommended meeting times

11/23	05:00 PM - 06:00 PM
11/24	10:00 AM - 01:00 PM
11/24	02:00 PM - 06:00 PM
11/25	10:00 AM - 01:00 PM
11/25	02:00 PM - 06:00 PM
11/26	10:00 AM - 01:00 PM
11/26	02:00 PM - 06:00 PM
11/29	10:00 AM - 01:00 PM
11/29	02:00 PM - 06:00 PM

Free time: By Cannot Attend

12:00 PM - 01:00 PM
01:45 PM
02:45 PM
04:00 PM - 05:00 PM
06:00 PM - 07:00 PM
08:00 PM - 09:00 PM
10:00 PM

user1 Redbook/IBM
User2 Redbook/IBM
Everyone

Free time No Info OK
Busy time Info Restricted Conflict

Change Invitee List...

Actions

Two new actions can be performed on new calendar entries. They are:

- Save as draft
- Delivery options

Save as draft

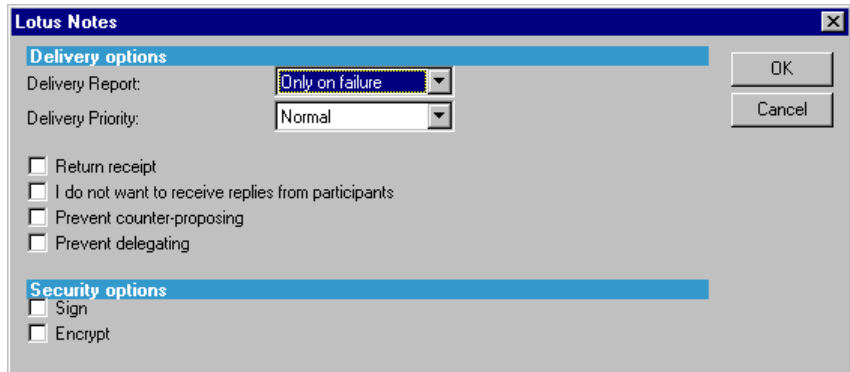
Save as draft can be performed in Release 4.5 or 4.6 by either choosing File - Save or using the File - Save icon, however this is not intuitive. Calendars which you save as drafts appear on your calendar or in your meetings view. It is recommended that you put a note in the calendar entry to be able to tell that this is a draft meeting. When you save it, you will be prompted and asked if you want to send to the recipients.

Delivery options

Release 4.5 and 4.6 do not allow you to specify delivery options. In R5, you can now specify the following:

- Delivery Report
The drop-down box options are:
 - None
 - Confirm Delivery
 - Trace entire path
- Delivery Priority
The drop-down box options are:
 - Low
 - Normal
 - High
- Return receipt
- I do not want to receive replies from participants
This is the same as I don't want responses from the invitees, found on the Release 4.5 and 4.6 invitation form.
- Prevent counter-proposing
This is a new option to R5.
- Prevent delegating
This is a new option to R5.

On the Delivery Report pop-up, you can also specify security options where you can elect to sign or encrypt the calendar entry.



Meeting workflow improvements

Meeting workflow has been enhanced. This will become evident when you look at the owner and participant options available to you on your action bar or action menu.

Owner actions include:

- Reschedule
- Cancel
- Confirm
- View Participant Status
- Send Memo to Participants

In Release 4.5 and 4.6, you have to create a memo and address it manually to all of the participants. This is no longer necessary in R5.

Participant actions include:

- Accept
- Decline
- Delegate
- Propose New Time

All of the above actions are available in Release 4.5 and 4.6; however, performing them is not necessarily intuitive.

In R5, when you receive a meeting invitation in the mail, you can easily accept, decline, delegate, propose a new time, or tentatively accept; all with or without comments. Adding comments is possible in Release 4.5 and 4.6, however, it is hidden behind the Other button or action. With R5, you can also specify, when you decline, that you want to be informed of updates. Then if the meeting is rescheduled, Notes informs you of the changed date/time or cancellation.

From the chairperson's point of view, when you reschedule a meeting, you can now include comments. Also, when you cancel a meeting, you can specify that all the documents regarding that meeting be deleted, not just disappear, from your calendars.

Calendar preferences

In Release 4.5 and 4.6, all of the preferences for the calendars are located in the Calendar Profile, with the exception of who can read or manage your calendar, which is controlled through the Delegation Profile.

In R5, you can access these preferences and many more by choosing the Action - Tools - Preferences pull-down or action bar menu. Once in the preferences, select the Calendar tab of the tabbed table. You will notice that the calendar preference has what is referred to as a nested tabbed table. There you can select from the following options:

- Basics
- Free Time
- Alarms
- Display
- Autoprocess
- To do

Many of the changes or additions to the preferences are significant and will be noted as we tour through each of the tabs under Calendar.

On the Basics tab, under calendar defaults, you will see a drop-down selection box next to "Double-clicking on the time-slot in Calendar creates a." It will allow you to select Meeting, Appointment, All Day Event, Anniversary or Reminder. This controls the action when you double-click on the calendar in a place where no calendar entry exists, and when you select Create Calendar Entry from the action bar.

You can also specify the default number of years to repeat anniversaries, and also assign Personal categories to calendar entries from this Preferences page.

The screenshot shows the 'Preferences' dialog box with the 'Calendar' tab selected. The 'Calendar Defaults' section includes a dropdown menu set to 'Meeting', a text box for '60' minutes, and a text box for '10' years. The 'Other' section has a text box containing 'business' and 'personal'.

Preferences

Mail | Calendar | Delegation

Basics | Free Time | Alarms | Display | Autoprocess | To Do

Calendar Defaults

Double-clicking on a time-slot in Calendar creates a Meeting

By default, schedule Appointments and meetings for 60 minutes

By default, Anniversaries repeat for 10 years

Automatically check for time conflicts when scheduling

☐ Enable for Appointments/Meetings

Other

Personal categories: business
personal

OK
Cancel

Minimal changes have been made to the Free Time preferences. You can now specify two time ranges to account for lunch or a break. In Notes 4.5 or 4.6, you only have one time range for each day of the week.

The screenshot shows the 'Preferences' dialog box with the 'Calendar' tab selected. The 'Free Time' section is highlighted in blue. It includes a text box for 'My normal office hours are:' and a list of days with checkboxes and time ranges. The 'Allow only these people view my Free Time information:' section has a text box.

Preferences

Mail | Calendar | Delegation

Basics | Free Time | Alarms | Display | Autoprocess | To Do

Free Time lets you specify the times during which you are normally available to attend meetings. Other people can view this information when they use the Scheduler.

My normal office hours are:

☐ Sunday

☒ Monday 09:00 AM - 12:00 PM, 01:00 PM - 05:00 PM

☒ Tuesday 09:00 AM - 12:00 PM, 01:00 PM - 05:00 PM

☒ Wednesday 09:00 AM - 12:00 PM, 01:00 PM - 05:00 PM

☒ Thursday 09:00 AM - 12:00 PM, 01:00 PM - 05:00 PM

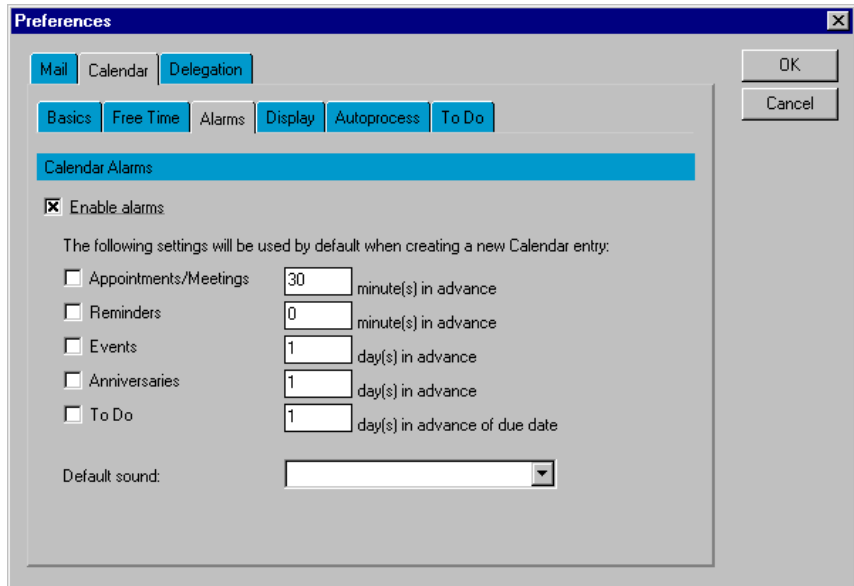
☒ Friday 09:00 AM - 12:00 PM, 01:00 PM - 05:00 PM

☐ Saturday

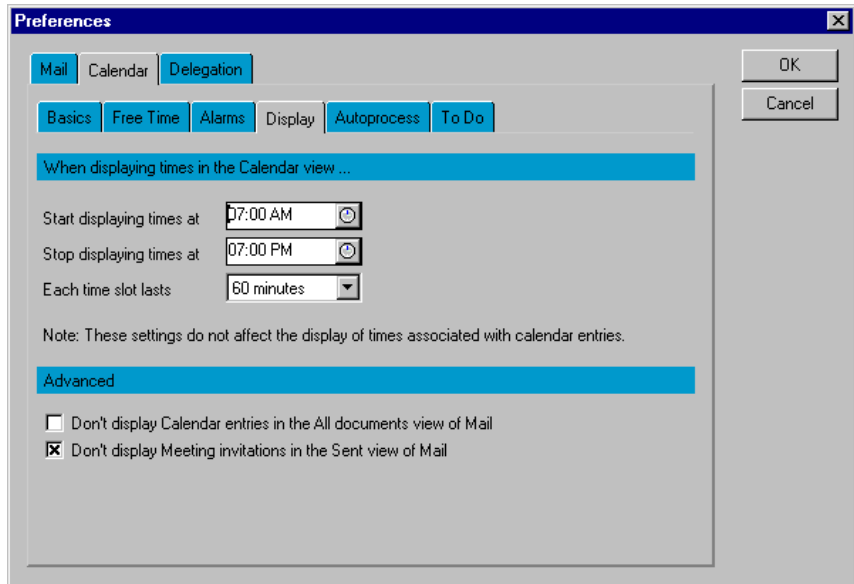
Allow only these people view my Free Time information:

OK
Cancel

You can now specify the default sound of the alarm on the Alarms Preferences tab.

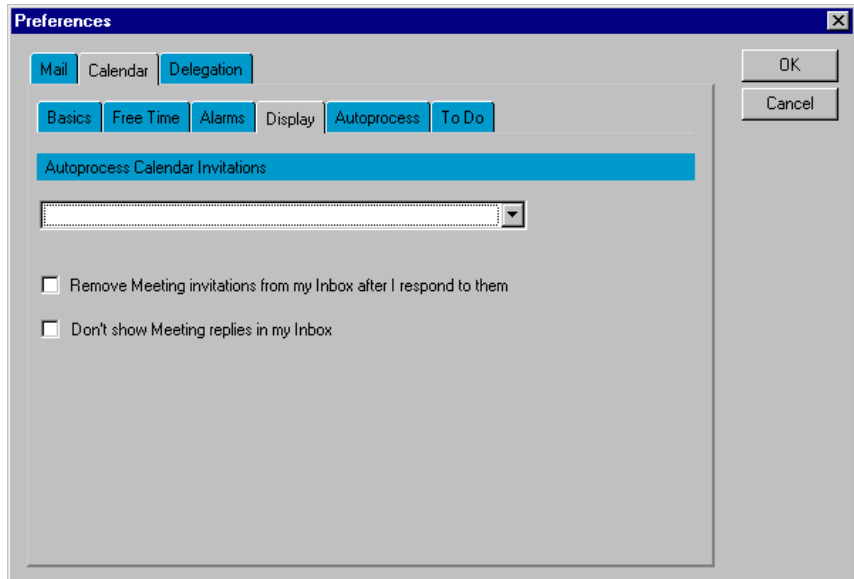


You can now specify the start and stop times you want to display on your calendar along with the time slot interval. Two advanced settings have been added which prevent you from deleting calendar entries by mistake. When these boxes are selected, the calendar entries are hidden.

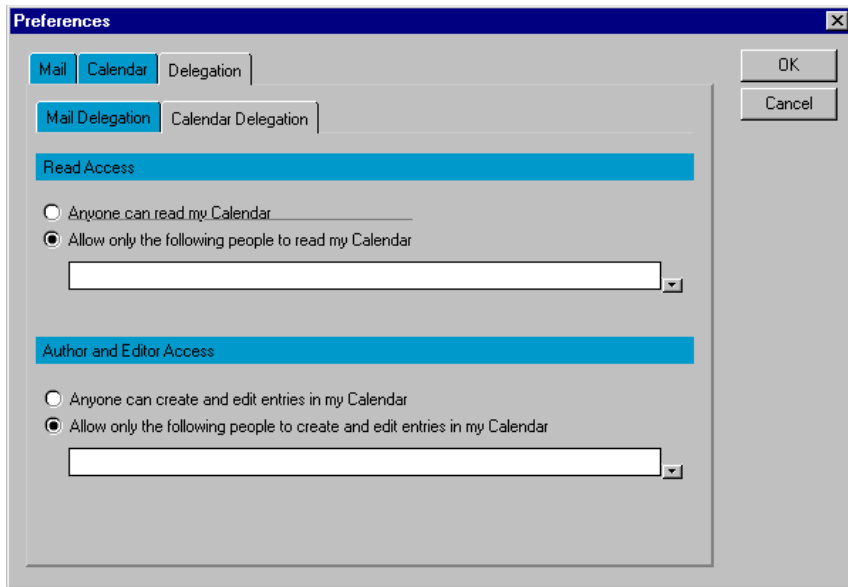


Auto processing of calendar entries is more granular in R5. You now have the following options under the drop-down box:

- Do not automatically process meeting invitations
- Automatically process meeting invitations from all users
- Automatically process meeting invitations from the following users
- Delegate meeting invitations to the following person



Calendar delegation is now done under the main delegation tab. One significant change to calendar delegation is that manager access to the mail file is no longer required to change delegation preferences. If the user does not have manager access, an administration process request will handle the ACL change.



Resource reservations

When C&S was introduced in Release 4.5, Lotus provided users with the ability to book or reserve rooms and resources. In R5, Lotus has added the concept of ownership to rooms or resources. In Release 4.5, anyone can book a room or resource. In R5, you now have several options. You can still allow anyone to access the room or resource, or you can designate an owner. If an owner is assigned to a room or resource, requests are forwarded to that owner and they can approve the request for that room or resource, or deny it.

You can also set up the room or resource with a list of approved requesters. If you are on that list, then Notes automatically processes your request. You can also merge the ownership and approved requester concepts together, by specifying that if the user is a member of the list, Notes should process the request, and if not, Notes should forward the request to a specified room or resource owner.

Previously, to get a list of room resources, you had to click a button, and look them up in the address book. You can now take advantage of the type-ahead function, so if you know the name of the room, you can just start typing it and Notes will find it.

Also, when you click the address book to see a list of rooms, you now get a list of the available cascaded address books. This allows you to book resources in another domain. Previously, you could only book resources and rooms in your own domain. Rooms or resources can now also be made unavailable. This might come in handy if your organization changes locations.

For those of you who book reservations in the reservation database itself, a repeating room reservation now can be made.

Holidays

In R5, an administrator can choose whether or not they want the company to use a new feature called Holidays. The holidays function allows you to import one or more sets of holidays into your calendar.

Note If a holiday exists in two sets and a user imports both sets, then that holiday will be added to their calendar twice.

Once the holidays have been set up by your administrator, you can add them to your calendar by importing the holiday set. The import holidays agent is available when you are in your calendar by choosing either the Action - Tools menu or the Tools action bar button.

Calendar printing

Calendar printing has been significantly enhanced in R5. A number of styles are available for you to choose from. They include:

- Daily
- Weekly — default
- Monthly
- Calendar List
- To do List
- Trifold

Note Trifold printing is new to 5.02.

Once you have selected a printing style, you can perform the following customizations:

- Font size
 - Small — default
 - Medium
 - Large
- Entry options
 - Print first line only
 - Wrap column data — default
 - Shrink column width to text — default
- Hours to print
- Page types
 - Full page — default
 - Day Timers Senior Desk
 - Day Timers Senior Portable
 - Day Timers Junior Desk
 - Day Timers Junior Portable
 - Franklin Day Planner Monarch
 - Franklin Day Planner Classic
 - 3x5 Index Cards Avery 5388

Note The three-month header was removed from the 3x5 Index Cards page type in 5.02 to maximize the printable area.

If you select the Trifold style, you can also select any of the other styles for the left, center and right portions of the trifold printout. Additional options are Include weekends and Print black and white only.

R5 also includes a print preview, so you can check your printout before you actually print it.

Note 5.02 removed the 15-minute increment lines and their identifiers so that it provides a cleaner printout, especially for the additional newer, smaller page types.

Performance enhancements

Repeating meetings have been rewritten with one thing in mind, to improve performance. Changes were made in two areas with regard to repeating meetings:

- One document
- Broadcast messages

One document

In Release 4.5, when you create a repeating meeting, Notes creates a new meeting document for each date. To schedule a meeting once a week for a year creates fifty-three documents, counting the original. If you invite ten people, then each receives fifty-three documents. In R5, only one document is created. That document contains all of the information about the other dates within it.

Note If you create a repeating meeting that reaches the summary limit of what you can have in a view, information will then be put in multiple documents.

Benefits of using the newly created repeating meeting documents include:

- Reduced time. A single document can be created much faster than multiple documents. Some repeating meetings took minutes to build in Release 4.5. The same can be accomplished in seconds in R5.
- Less overhead on clients and servers, when building only one document instead of many.
- Modifications are made to one document. If you make a change and apply it to all, you will only make a change to one document instead of many.
- The number of documents replicated around is reduced.
- The number of views required to be indexed is reduced.

Broadcast messages

All repeating meetings in Release 4.5 are sent out as broadcast messages. This means that you cannot accept or decline them. R5 repeating meetings are no longer broadcast messages and you can now accept, decline, delegate and so on. They are no different now than a non-repeating meeting.

Note The check box which makes a message a broadcast message, "I do not want to receive replies from participants," is now available under delivery options.

Summary

This chapter covers aspects relating to Calendaring and Scheduling in R5.

Significant usability enhancements have been made to the C&S user interface. The mail template was rewritten from the ground up, to take full advantage of a number of R5-specific features. Additional thought and focus was given to increasing overall C&S performance. Performance improvements were achieved as a result of the restructuring of repeating meetings, and by sharing code as much as possible.

Also, many functional enhancements are made in the areas of group calendars, holiday support, and calendar printing.

Chapter 17

To do lists

Tasks were introduced in Release 4 as part of mail. With Release 4.5, tasks could be displayed on your calendar, and some group capabilities were introduced. R5 incorporates enhancements to let you manage workflow, and changes the name of the feature from tasks to to do lists.

This chapter describes the differences between the latest Release 4.5 or 4.6 and the R5 mail templates with respect to to do's. Features and functions common to R5 and prior releases are not discussed here.

You will not see the features described in this chapter unless you upgrade your mail template to the R5 design. This is not automatically done as part of the Notes client upgrade process.

The target audience for this chapter is end users familiar with the latest 4.5 or 4.6 mail template functionality, application developers if they do local customization of your mail template, educators, and help desk personnel.

This chapter describes the features of R5 to do's that have changed from previous releases. It includes detailed descriptions of the following features:

- Navigation
- Creation of to do's
- Maintaining to do's
- Displaying to do's on your calendar
- Workflow
- Migrating Organizer 97 GS

Navigation

When you open your mail database in Release 4.5 or 4.6, you are brought directly into your mail. To view or manage your to do's requires you to select the to do navigator from the navigation pane on the left side of the screen.

While you can still switch from your mail to a to do item in R5 using a switcher, you can bypass the step by either selecting to do directly from the Welcome page, or clicking the to do icon on your bookmark bar. These later two methods will open an additional task, which allows you to easily jump between your to do's and other functions, such as your mail. The location and description of the new bookmarks and the switcher are discussed in Chapter 1, "Ease of using the Notes R5 client."

In Release 4.5 and 4.6, you have one view to manage your to do's. In R5, you will find that you can manage your to do's through the following views:

- By Due Date
- By Category
- By Status

By Due Date

By Due Date allows you to sort all of your to do's regardless of status. This cannot be done in Release 4.5 or 4.6.

To do		New To Do Item	Mark Completed	Unmark Completed	
	To do	Due	Status		
By Due Date					
By Category					
By Status					
Trash					
Stationery					
admin					
Group Calendars					
Project One					
	order PC's for Project One	11/19/99	Curre		
	Ensure that we have cables for new PCs	11/19/99	Curre		
	find floor space for new PCs for Project One	11/17/99	Over		
	Pick up wife anniversary gift	11/23/99	Futur		

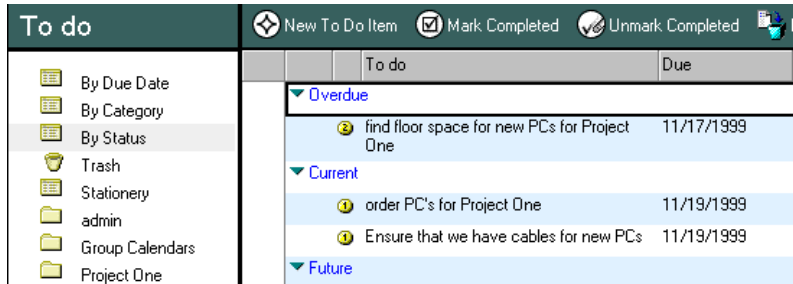
By Category

The By Category view sorts all of your to do's by the categories that you optionally define when you create a task.

To do		New To Do Item	Mark Completed	Unmark Completed	
	To do	Due			
By Due Date					
By Category					
By Status					
Trash					
Stationery					
admin					
Group Calendars					
Project One					
	Pick up wife anniversary gift	11/23/1999			
	find floor space for new PCs for Project One	11/17/1999			
	order PC's for Project One	11/19/1999			
	Ensure that we have cables for new PCs	11/19/1999			

By Status

The By Status view is the same as the default view in Release 4.5 and 4.6. It sorts all of your to do's by classifying them in three categories: overdue, current, or future.



Creation of to do's

You can create a to do item in several ways, as follows:

- Select the Create menu from within your mail.
- Choose New To Do Item from the action menu or action bar button while within any to do view.
- Open the More Bookmarks folder on your action bar, then select New to do from within the Create folder.

When you create a to do in R5, the interface displays tabbed tables on which you define the to do items.

Two tabs are available when you create a to do. They are:

- Basics
- Options

Basics

The Basics tab adds one capability or check box that 4.5 and 4.6 users do not have, the ability to repeat a to do item. An example of how this might be used is if you always do something at the end of the month and you want to schedule it for the next two years. You don't have to manually create each month's entry like you did in Release 4.5 or 4.6; you simply click the repeat check box, and then in settings, you select the appropriate repeat options.

✓ Save and Close ⏏ Completed

To Do

Basics Options

Subject:

Starts: Priority:

Due: Type:

☐ Repeats

Description:
—

Options

New options not available in Release 4.5 or 4.6 are provided on the Options tab. They are:

- Mark Private
- Notify me

✓ Save and Close ⏏ Completed

To Do

Basics Options

☐ Mark Private Others cannot see any details about this event.

☒ Notify me Have Notes notify you before the event.

Categorize:

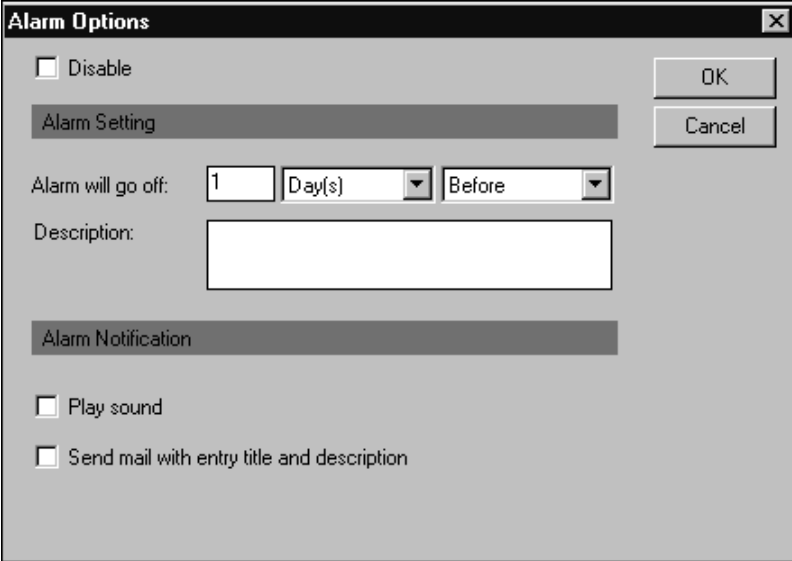
Description:
—

Mark Private

Mark Private prevents others from seeing the details about this to do item.

Notify me

When you select the Notify me option, you will see an alarm pop-up box. Here you specify the time when you want to be reminded of a to do item, and also the type of notification you want (sound, mail, or both).

The image shows a dialog box titled "Alarm Options" with a close button (X) in the top right corner. Inside the dialog, there is a "Disable" checkbox at the top left. Below it is a section header "Alarm Setting". Under "Alarm Setting", there is a label "Alarm will go off:" followed by a text input field containing the number "1", a dropdown menu currently showing "Day(s)", and another dropdown menu currently showing "Before". Below this is a label "Description:" followed by a large empty text area. At the bottom of the dialog is another section header "Alarm Notification". Under this header, there are two checkboxes: "Play sound" and "Send mail with entry title and description". On the right side of the dialog, there are two buttons: "OK" and "Cancel".

Maintaining to do's

A number of actions can be performed while in the to do views. They include:

- New to do Item
- Mark Completed
- Unmark Completed
- Delete
- Owner Actions
- Participant Actions
- Copy into
- Tools

New to do Item

New to do Item was discussed under the creation of the to do's section, earlier in this chapter. This is called New Task in Release 4.5 and 4.6.

Mark Completed, Unmark Completed, Delete

Mark Completed, Unmark Completed and Delete perform the same actions as in Release 4.5 and 4.6. However, Unmark Completed was only available from the Actions menu (not on the Action bar).

Owner and participant actions

Owner and participant actions are discussed later in this chapter, in the section on workflow.

Copy Into

Copy Into is a new action in R5. Use it to copy a to do item into a New Memo, a New Calendar Entry or a New to do.

Tools

Two new tools are available for to do's. They are:

- **Add Sender to Address Book**
This tool adds the sender of a to do to your personal name and address book. This can only be used for to do's that were assigned to you by others.
- **Preferences**
There is only one preference setting to control: whether to do's should be displayed on your calendar. This will affect the behavior of all to do's.

Note You will notice that once you have defined a to do, you no longer need to open that item and then select edit from the Action menu or Action bar. In Release 4.5 or 4.6, this is a two-step process. The edit action has been removed in R5: when you select a to do, you will automatically be brought into edit mode.

Displaying to do's on your calendar

In Release 4.5 and 4.6, there is an action to display a to do on your calendar. If you want all of your to do's to display on your calendar, you must choose this action as you create the to do's.

In R5, it works just the opposite. Like Release 4.5 and 4.6, to do's will not appear on your calendar by default. However, in R5, you can change this behavior to display all to do's on your calendar by changing the application preferences.

To enable this application preference, change to one of your to do views. Choose Tools - Preferences on either the action menu or on the action bar. Due to the number of buttons on the action bar, you may need to scroll horizontally to the right, using the arrows provided on the right-hand side of your action bar. You will find a check box option called “Always show current to do’s on today’s calendar” under the to do tab. If you do not have local agents enabled, a pop-up box will inform you that you must enable them.

The pop-up does not tell you specifically how to enable local agents, but this can be turned on by choosing File - Preferences - User Preferences, and then clicking the check box “Enable local agents” under Startup Options on the Basics tab. To not display a to do to others, simply mark it private. This option is available on the Options tab.

To do’s that display on your calendar will be displayed even after they are overdue. They will remain on your calendar until you mark them completed or delete them. This is a change from Release 4.5 and 4.6, where tasks are only displayed on the start date.

Workflow

While to do’s can be assigned to others in Release 4.5, in R5, more sophisticated workflow capabilities have been added. For instance, if you receive a to do that is not in your area of expertise, you can now delegate it. In Release 4.5 and 4.6, you can only return it to the sender with a request to reassign the to do. As the recipient of a to do assignment in R5, you now have a number of controls over the item: you can modify, accept, or delegate the to do. Notes sends a notice to the person who assigned you the to do, saying that it was delegated to someone else.

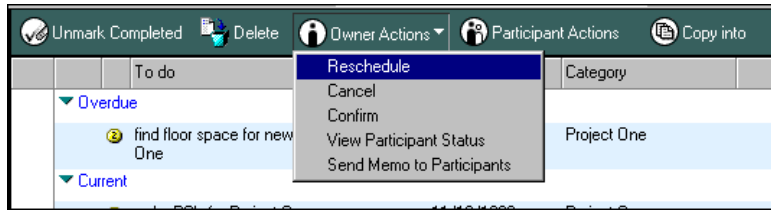
As the owner of a to do, you can cancel it or change the due date. If you take these actions, Notes will automatically send out a notification of the change to appropriate parties. Actions can be easily performed on to do’s by selecting one of the drop-down action bar menus: Owner Actions or Participant Actions.

Owner Actions

Owner Actions include:

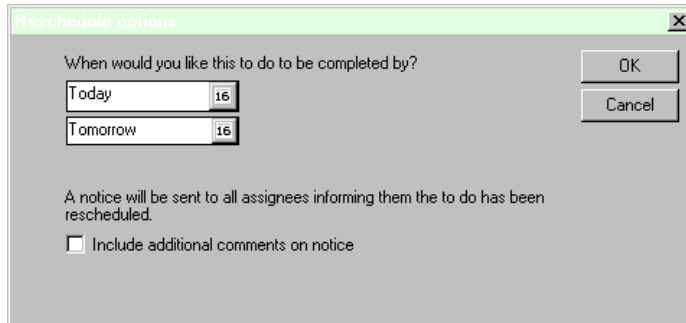
- Reschedule
- Cancel
- Confirm

- View Participant Status
- Send Memo to Participants



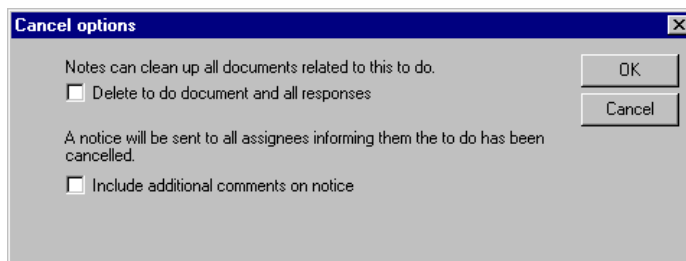
Reschedule

Reschedule allows you to change the start or due date. A pop-up box is used to specify the revised date, and a notice is sent to all assignees. You can optionally include additional comments in the form of a memo.



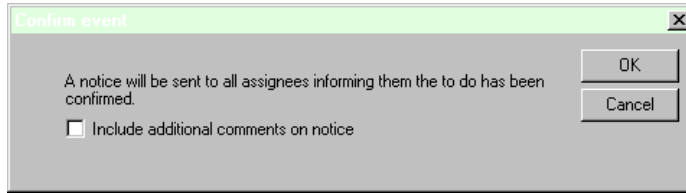
Cancel

Several additional options are presented in the pop-up box in which you confirm canceling the to do. You can choose to delete all documents related to the to do, and you can elect to send additional comments to assignees along with the notice of cancellation, which they receive automatically.



Confirm

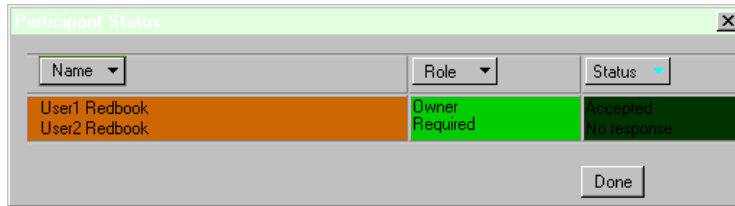
Confirm will send a notice to all assignees informing them that the to do has been confirmed. You can optionally include additional comments in the form of a memo.



A dialog box titled "Confirm event" with a close button (X) in the top right corner. The main text area contains the message: "A notice will be sent to all assignees informing them the to do has been confirmed." Below this text is a checkbox labeled "Include additional comments on notice", which is currently unchecked. On the right side of the dialog, there are two buttons: "OK" and "Cancel".

Show participant status

Show participant status displays all assignees of the to do along with the status of each (for example Accepted, Rejected, No response).



A dialog box titled "Participant Status" with a close button (X) in the top right corner. It features three dropdown menus at the top: "Name", "Role", and "Status". Below these is a table with two columns: "Name" and "Role". The table has two rows of data. The first row shows "User1 Redbook" under "Name" and "Owner" under "Role". The second row shows "User2 Redbook" under "Name" and "Required" under "Role". To the right of the table, there are two status indicators: "Accepted" and "No response". At the bottom right of the dialog is a "Done" button.

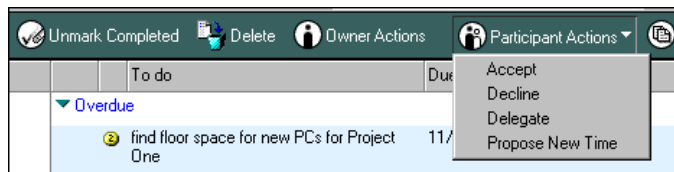
Send memo to participants

Send memo to participants pre-addresses a memo to all assignees.

Participant Actions

Participant Actions include:

- Accept
- Decline
- Delegate
- Propose New Time



A screenshot of a software interface showing a "Participant Actions" menu. The menu is open, displaying four options: "Accept", "Decline", "Delegate", and "Propose New Time". The menu is located over a table that lists tasks. The table has columns for "To do", "Due", and "Status". The first row shows a task "find floor space for new PCs for Project One" with a due date of "11/1" and a status of "Overdue".

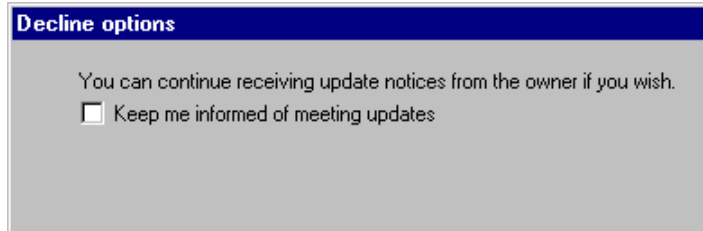
Note While these actions are available at all times, they are not applicable to all to do's. If an action is not valid for a particular to do, nothing will happen when it is selected.

Accept

Accept will notify the sender of the to do that you have accepted it as your task. This is particularly useful so that the sender can view the participant status.

Decline

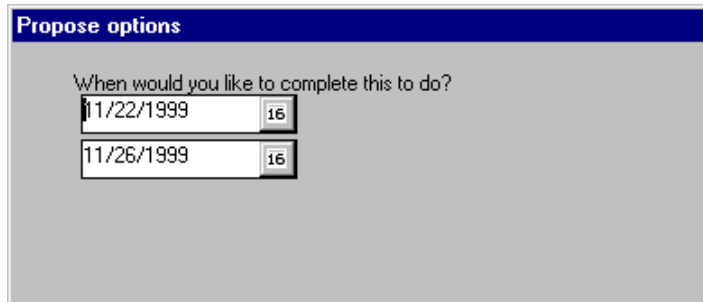
Decline will notify the person who sent you the to do that you do not accept this assignment. You can optionally request to be kept informed of to do updates. An example in which this is useful is if you decline a meeting assignment because you will not be present on a particular day, but you would accept the to do if it is changed to a different day. By receiving updates, you will know if the to do fits into your schedule in the future.



The screenshot shows a dialog box titled "Decline options" with a blue header bar. Below the header, the text reads: "You can continue receiving update notices from the owner if you wish." Below this text is a checkbox labeled "Keep me informed of meeting updates". The checkbox is currently unchecked.

Propose new time

Propose new time allows you to select the start date and the due date. (In the 5.02 pre-gold mail template build, the words are missing from the dialog box.)



The screenshot shows a dialog box titled "Propose options" with a blue header bar. Below the header, the text reads: "When would you like to complete this to do?". Below this text are two date selection fields. The first field shows "11/22/1999" and the second field shows "11/26/1999". Each field has a small calendar icon to its right.

The participant and owner described previously are those that can be performed when you are in any of the to do views. However, most users will probably want to take action on to do's that are assigned to them from their mail. You will be able to use the actions available under Respond or Respond with comments. The options are the same as those described under "Participant Options" above. Once you take an action, choose Action - Remove from folder to have it appear only in your to do views (remove it from your inbox view).

Migrating Organizer 97 GS

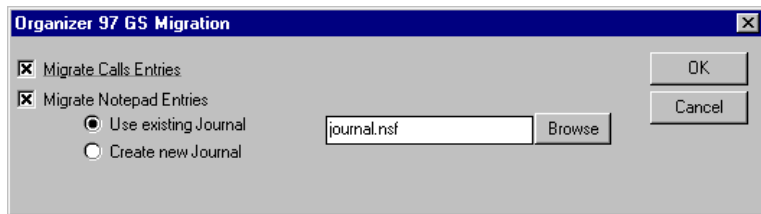
An Organizer 97 GS import agent was added to the Release 5.02 mail template. This agent allows you to migrate call entries and notepad entries. This migration is meant to be a one-time operation and is not intended for interoperability back and forth with Organizer 97 GS and Notes.

Once migration has taken place:

- Call entries will be displayed in the to do view of your mail database with the header “Call Entry.”
- Notepad entries will be migrated into either an existing journal or a new journal that you specify.

To access this import agent:

1. Switch to the to do view.
2. Choose either the Actions - > Tools menu or the Tools action bar button and select Migrate Org 97 GS. You will then see the following dialog box:



Note Information contained in an Organizer Call entry under the Dialing Properties is not mapped to Notes. If you wish to access that information, paste the data in the “Notes” tab of the Call entry, which is mapped to the Description field of the new entry in the Notes to do document.

Note OLE objects are not preserved. See the 5.02 release note titled “Issues in migrating from Organizer to Notes” under Troubleshooting/Migration to recover OLE objects.

Summary

Changes have been made to how you access, create and manage your to do's. R5 to do's now use tabbed tables for creation. A number of enhancements have been added upon creation of new to do's, like making a task repeatable and setting an alarm.

Changes have been made to how to do's are displayed on your calendar. To do's that are on your calendar will now follow you after they are overdue. They will be maintained on your calendar until they are completed or deleted.

The single most significant change to to do's is in the area of task management. A number of changes have been made to allow owners and participants to act upon to do's that they own or to which they have been assigned.

All of these changes and enhancements were discussed in this chapter.

Chapter 18

Personal Name and Address Book

A number of enhancements have been made to the Release 4.5 and Release 4.6 Personal Name and Address Book (PNAB) templates in the point releases. If you are upgrading from an earlier version of R4.5 or 4.6 to R5.0, you may see even more enhancements than are documented in this section. The purpose of this chapter is to discuss the differences between the latest 4.5 or 4.6 and the R5 PNAB templates. Features and functions found in common will not be discussed.

Over the years, you probably have noted that the description of the address book entries has changed. Originally, we had People in the PNAB, then we moved to Cards, and now in R5, the address book entries are called Contacts.

The purpose of the information stored in your PNAB, however, has not changed all that much over the years. You will most likely find that you will need to store less information in your PNAB as time goes along because your company will store more information either in the Domino Directory or in a directory accessible via LDAP.

R5 makes external information more accessible to you. Some of the methods to take advantage of this are discussed in Chapter 19, “Using new R5 features.” You may never be able to eliminate the use of your PNAB because you will probably still require the ability to store personal information and information about customers and friends.

This chapter discusses the following parts of the Personal Name and Address Book:

- New user interface
- Addresses
- Settings
- Preferences
- Dynamic configuration

New user interface

When you upgrade your Notes client to R5, the design of your PNAB will be updated automatically. The R5 PNAB uses switchers, which are described in Chapter 1, “Ease of using the Notes R5 client.” The switcher will allow you to toggle between:

- Addresses
- Settings

In 4.5 and 4.6, this was done by changing to the appropriate view.

Addresses

Each time you open the R5 PNAB, you are brought into your Address Book. The first thing you will probably notice is that a picker has been added, which displays the letters of the alphabet along the right side of the left frame. To speed up searches, use your mouse to select the first letter of a person or group name to look up. This helps you navigate quickly to all entries that begin with the selected character.



There are three views available while you are displaying addresses. They are:

- Contacts
- Contacts by Category
- Groups

These views are identical to those found in Release 4.5 and 4.6, with the exception that business cards have been renamed to Contacts, and By Category has been renamed to Contacts by Category.

Contacts

When you create a contact entry, you can define all kinds of information like telephone, e-mail, company, personal and business information. All of the fields within a contact form are now presented to you in tabbed table format.

The screenshot shows a web-based contact form titled 'Save and Close'. The form is for a contact named 'Admin1 Redbook', an Analyst at IBM. The contact's address is 'Rt 100, Southbury, CT 06488, USA'. The form includes fields for various phone numbers (Office, Office fax, Cell, Home, Home fax), a Pager, and email/URL information. The form is organized into tabs: Basics, Details, Comments, and Advanced. The Basics tab is currently selected, showing fields for Name (First, Middle, Last, Title, Suffix) and Phones (Office, Office fax, Cell, Home). The form also displays a logo of a yellow flower on a brown background.

Name		Phones	
First name:	Admin1	Office phone:	555-1212
Middle name:		Office fax:	203-666-5555
Last name:	Redbook	Cell phone:	203-123-4567
Title:		Home phone:	203-111-3333
Suffix:			

First name(s) and nicknames - e.g. John, Johnny

On the top of the form is a logo. As you type certain information into the contact form, some of that information is displayed next to the logo. Much of this same information is also displayed within the view after you save the document.

Some additional fields have been added to an R5 contact form. They are all found on the Advanced tab. They include:

- Internet certificate
- Internet certificate issuers
- Logo

- Phonetic name
- Display name format

Internet certificates and Internet certificate issuers

Internet certificates and issuers are added to a contact form when you add a contact to your PNAB through the Add Sender to Address book function, which is discussed in Chapter 15, “Mail.”

Logo

A logo can be selected when you create a contact entry. It will be displayed over the tabbed table that is used for entering the address or group information.

You can select from the following logos:

- Beach Texture
- Canvas Texture
- Circuits
- Light Texture
- Puffin

Phonetic name

Phonetic names are used in sorting users in certain instances of the name picker and mail address dialogs. In certain languages, the phonetic names are used to distinguish two people with the same alternate name. You can assign a phonetic name, which you can associate with the contact you are creating.

Display name format

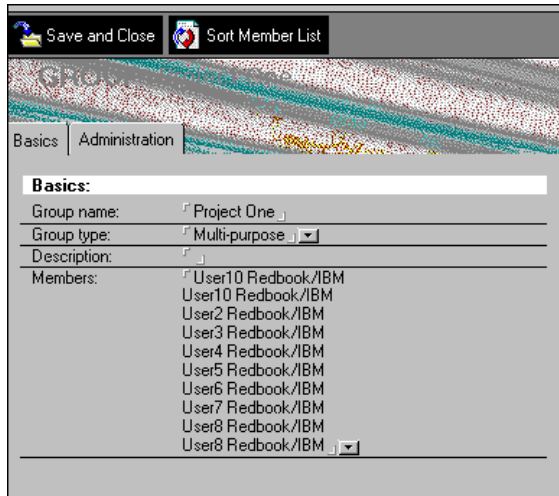
This option allows you to control the order in which names are displayed, either lastname firstname or firstname lastname.

Full user name

While the full user name is not new to R5, you will want to make sure that this field contains the person's Notes mail address, or you will get an ambiguous name dialog box when using directory catalog. Notes uses this field for the lookup of e-mail addresses for name resolution.

Groups

The group capabilities have not changed from 4.5 or 4.6 to R5. Tabbed Tables are used in group documents, however.



Settings

You can switch between your address book and Settings using the switcher at the bottom of the left frame. From settings you can manage:

- Accounts
- Connections
- Locations
- Certificates
- International MIME settings
- Temporary export certificates.

Accounts

Accounts are new in R5. They allow you to integrate e-mail, news, and directory information from resources other than Lotus Notes. You can set up an account if you plan to use any of the following protocols:

- **Internet Message Access Protocol (IMAP)**
The latest implementation of IMAP is Version 4. It allows a client to access and manipulate electronic mail messages on a server. IMAP4 permits manipulation of remote message folders, called “mailboxes,” in a way which is very similar to local mailboxes. IMAP4 also provides the capability for an off-line client to resynchronize with the server. It is the logical successor to POP3.
- **Lightweight directory access protocol (LDAP)**
The LDAP API is designed to be powerful, yet simple to use. It can provide a lightweight front-end to the X.500 directory or a stand-alone service.
- **Network News Transfer Protocol (NNTP), RFC 977**
NNTP has facilities to support reading newsgroups, posting new articles, and transferring articles between news servers. NNTP is a request-reply protocol in the style of SMTP or FTP. Unlike mail, news does not require separate protocols for user-to-host and host-to-host exchanges. NNTP is used in all cases.
- **Post Office Protocol (POP), RFC 1725**
Currently implemented in POP3, this protocol is designed for user-to-mailbox access. Facilities are provided for user authentication and mailbox manipulation. Authentication takes the form of a password transmitted as clear text, so POP3 should be used carefully if security is of concern.
- **Simple Mail Transfer Protocol (SMTP), RFC 821**
This is the Internet’s standard host-to-host mail transport protocol and traditionally operates over TCP, using port 25. SMTP does not provide any mailbox facility, nor any special features beyond basic mail transport.

Preconfigured accounts

A number of documents will be added to your PNAB for those users who are new to R5. Users who have upgraded from an earlier version of Notes will not see these documents. The administrator can make them available to you if necessary. These documents have preconfigured server addresses for directories that are accessible via LDAP. They include:

- Bigfoot
- Four11

- InfoSpace
- InfoSpace Business
- Internet Directory
- SwitchBoard
- Verisign
- WhoWhere
- Yahoo! People Search

For more information about how to search these directories via LDAP, see Chapter 19, “Using new R5 features.”

You will need to configure a new account if you have mail accessible via IMAP or POP. The server address that you configure can be either a Domino server, if your company provides mail via that standard, or one that resides on your Internet Service Provider’s (ISP) server. If you configure an account for IMAP or POP, you will also need to configure an account for SMTP. When you do so, an additional outgoing mailbox will be added to your replicator page, to connect to the configured server and route mail.

Settings		Add Account	Edit Account	Delete Account	Tools...
Accounts	Account Name	Protocol	Applies to Location(s)		
Connections	Bigfoot	LDAP	*		
Locations	d01mlc07.somers.hqregion.ibm	SMTP	*		
Certificates	Four11	LDAP	*		
International MIME Settings	InfoSpace	LDAP	*		
Temporary Export Certificate	InfoSpace Business	LDAP	*		
	Internet Directory	LDAP	*		
	pop.ign.ibm.com incoming Inter	POP	*		
	SwitchBoard	LDAP	*		
	Verisign	LDAP	*		
	WhoWhere	LDAP	*		
	Yahoo! People Search	LDAP	*		

When you add an account, you are presented with a tabbed table with three tabs. They are:

- Basics
- Protocol Configuration
- Advanced

Basics

Define the general information about the account on the Basics tab. The fields available to you are:

- Account name
- Server name

- Login name
- Password
- Protocol
- SSL
- Only from locations

Account name, server name and password

These fields are self explanatory.

Protocol

Use this drop-down box to select the appropriate protocol. Configurable protocols include:

- IMAP Offline
- IMAP Online
- LDAP
- NNTP
- POP
- SMTP

IMAP has two selections, IMAP Online and IMAP Offline. The following information from Technote document 171249, Message & Mail \IMAP, describes the differences between the two to help you determine which is the appropriate choice. The complete document can be found at

<http://www.support.lotus.com/lshome.nsf>

- **IMAP Online** — This setting allows an IMAP client to display and manipulate messages and folders stored on an IMAP server. The IMAP user can create, rename, move and delete folders. The user can also send, edit, copy, paste and save messages. It is analogous to a Notes client or a browser reading a mail file on a Domino server.

This method will create a proxy database in the client's directory. The proxy database allows you to see and manipulate documents in the server-based mail-file even though the proxy NSF itself does not store any message documents. Close and reopen the Account document and click the Open Proxy button in the action bar. The proxy database displays the contents of the server-based mail file even though the proxy database stores no documents.

- **IMAP Offline** — Use this setting to download messages stored in a mail file on an IMAP server to the client and then disconnect. Very similar to how a POP3 client downloads messages from a POP3 server with the exception that the IMAP server does not delete messages after transferring them to the client.

This supports the concept of universal inbox whereby a Notes client can download and store messages from various sources — POP3, IMAP and Domino — all in the Notes R5 mail file. The mail file can be either local to the client or server-based. The user could also use Notes replication to replicate this universal inbox. No proxy database is created. In the location document, specify the mail file that will receive the downloaded messages. Open the replicator and click the "Send and receive mail button." The messages on the IMAP server download to the specified mail file.

Protocol Configuration and Advanced

The information on the Protocol Configuration tab varies depending on the protocol you select on the Basics tab. The Advanced page specifies the port to be used. This port dynamically changes as you change the protocol selection on the Basics tab.

Connections

The purpose of Connection documents remains the same in R5, however the user interface has changed. When you add or edit a server connection, you will find that the information that you customize is available in a tabbed table format.

Save and Close

SERVER CONNECTION

Basics | Comments | Advanced

Basics

Connection type: Notes Direct Dialup

Always use area code: No

Destination

Server name:

Country code:

Area code:

Phone number:

A feature introduced late in R4.6, that is also available in R5, is wildcard Connection documents. If you had several Connection documents to Notes servers in the past, you can replace them with one or more wildcard Connection documents.

For example, you can have one Connection document with a Server Name of “*” and Destination Address of “*.ibm.com”, and that Connection document will cover all IBM servers. If you attempt to resolve a server like D01MLC07, it will look for the address at d01mlc07.ibm.com.

Locations

Location documents also use tabbed tables. A Connection Configuration wizard has been added to walk you through the steps of creating a Connection document that this Location document will use. See Chapter 1, “Ease of using the Notes R5 client,” for a picture and an explanation of wizards.

You must first enter the name of the Location document prior to using the wizard. The wizard is smart enough to build a connection record based on the location type you have configured on the Basics tab.

Save and Close

LOCATION

Basics | Mail | Internet Browser | Replication | Advanced | Administration

Basics

Location type: No connection

Prompt for time/date/phone: No

Location name:

Internet mail address:

Default display name: Display primary names

There are a large number of tabs available for the Location documents. The number of available tabs and fields varies depending on the location type you select on the Basics tab. Due to the large number of location types, we will only look at local area network changes. Many of these additional fields are shared by other location types.

The following tabs have changed or contain new information:

- Server
- Mail
- Replication
- Advanced

Tip You can right mouse click the static text next to the field to view pop-up information about any item. This provides more information than field-level help which when available can be found just above your status bar.

Server

The additional servers you can now configure are:

- Catalog/domain server
- Domino directory
- Sametime server

Servers	
Home/mail server:	<input type="text" value="sydney/ibm"/>
Passthru server:	<input type="text" value=""/>
Catalog/domain search server:	<input type="text" value="hamburg/ibm"/>
Domino directory server:	<input type="text" value="hamburg/ibm"/>
Sametime server:	<input type="text" value="new york/ibm"/>

Mail

The following are new mail actions you can select:

- Configure an Internet domain for Notes address when connecting directly to the Internet.
- Activate recipient name type-ahead on each character or on a delimiter. Format messages addressed to Internet addresses in either Notes Rich Text Format or MIME format.

The screenshot shows the 'Connection Configuration Wizard' window with the 'Mail' tab selected. The window has a title bar with 'Save and Close' and 'Connection Configuration Wizard' buttons. Below the title bar is a tabbed interface with tabs for 'Basics', 'Servers', 'Ports', 'Mail', 'Internet Browser', 'Replication', 'Advanced', and 'Administration'. The 'Mail' tab is active, showing a list of configuration options for mail. The options are as follows:

LOCATION: Office Server-user1	
Mail file location:	<input type="checkbox"/> on Server
Mail file:	<input type="checkbox"/> mail\user1.nsf
Notes mail domain:	<input type="checkbox"/> Redbook
Internet domain for Notes addresses when connecting directly to the Internet:	<input type="checkbox"/>
Recipient name type-ahead:	<input type="checkbox"/> Local then Server
Activate recipient name type-ahead:	<input type="checkbox"/> On Each Character
Recipient name lookup:	<input type="checkbox"/> Stop after first match
Send outgoing mail:	<input type="checkbox"/> through Domino Server
Format for messages addressed to internet addresses:	<input type="checkbox"/> Notes Rich Text Format

Replication

A new replication choice is available in R5, as follows:

- High priority replication — When you enable replication on your replicator tab, you can then set the day, time and repeat interval for normal replication.

You will also see a new option called High priority replication. When you enable this option, you can then set up another schedule for databases that you want to replicate more frequently. This feature is particularly useful, for example, when you would like your mail updated every 15 minutes, and all other databases every four hours. See Chapter 1, “Ease of using the Notes R5 client,” for more information on how to configure databases on your replicator page to use high priority replication.

Save and Close Connection Configuration Wizard

LOCATION: Office Server-user1

Basics Servers Ports Mail Internet Browser Replication Advanced Administration

Replication

Schedule: ☒ Enabled

Replicate daily between: ☒ 08:00 AM - 10:00 PM

Repeat every: ☒ 60 minutes

Days of week: ☒ Mon, Tue, Wed, Thu, Fri, Sat, Sun

High priority replication: ☒ Enabled

Priority Replication

Replicate daily between: ☒ 08:00 AM - 10:00 PM

Repeat every: ☒ 60 minutes

Days of week: ☒ Mon, Tue, Wed, Thu, Fri, Sat, Sun

Advanced

This is a nested tabbed table with a number of selections. The new configuration choices are as follows:

- On the Advanced Basics tab:
 - Use your operating system's time zone settings, Yes or No.
The effect of these choices is:
 - If set to 'Yes,' you can make time zone setting changes only through the Operating System (OS). Notes will adhere to whatever time zone the OS is set to, and you will not have the option to make changes through Notes.
 - If set to 'No,' you can make time zone changes through either Notes or the OS; fields become available in the Location document so that you have the option to change the settings through Notes.

The time zone settings will remain synchronized between Notes and the OS regardless of whether 'Yes' or 'No' is selected for this field.
- Define the bookmarks database filename.
- Define the subscriptions database filename.

Save and Close Connection Configuration Wizard

LOCATION: Office Server-user1

Basics Servers Ports Mail Internet Browser Replication Advanced Administration

Basics SSL Web Retriever Java Applet Security Secondary Servers MIME Settings

Advanced Basics

Use operating system's timezone settings: ☒ Yes ☐ No

Only for user: user1 redbook/ibm

User ID to switch to: C:\notes\data\user1.id

Load images: Always

Bookmarks filename: bookmark.nsf

Subscriptions filename: headline.nsf

Network dialup idle timeout: minutes

- On the MIME Settings tab:
 - Set the MIME setting for outbound attachment encoding method to Base64 or Quoted-Printable.
 - Set the MIME setting for outbound Macintosh attachment conversion to BinHex 4.0 or AppleDouble.

Save and Close Connection Configuration Wizard

LOCATION: Office Server-user1

Basics Servers Ports Mail Internet Browser Replication Advanced Administration

Basics SSL Web Retriever Java Applet Security Secondary Servers MIME Settings

MIME Settings

Outbound attachment encoding method: Base64

Outbound Macintosh attachment conversion: BinHex 4.0

Certificates

No significant changes have been made to certificates, with the exception that the user interface is now in a tabbed table format.

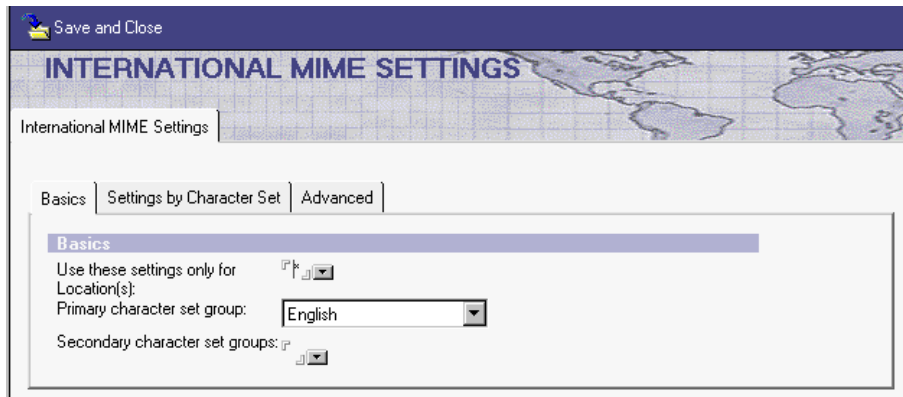
International MIME settings

When you create a memo, you can specify the MIME character set to use under Delivery Options on the advanced tab. You can tailor or override the default International MIME settings by changing the conversion options in your PNAB.

These settings are controlled through a tabbed table. The tabs include:

- Basics
- Settings by Character Set
- Advanced

On the Basics tab, you specify which Location documents these settings will work with. You also define the Primary character set group. Making this selection determines what information you can change when you select the Settings by Character Set tab.



The screenshot shows a dialog box titled "INTERNATIONAL MIME SETTINGS" with a "Save and Close" button at the top left. Below the title bar, there is a tabbed interface with three tabs: "Basics", "Settings by Character Set", and "Advanced". The "Basics" tab is currently selected and highlighted. Inside the "Basics" tab, there are three settings: "Use these settings only for Location(s):" with a location selection icon, "Primary character set group:" with a dropdown menu showing "English", and "Secondary character set groups:" with a character set selection icon.

Outbound message options allow you control over fonts for HTML and plain text for selected character sets. Outbound message options allow you to control character sets for the header and the body.

Note The average client should not need to specify international MIME settings.

The screenshot shows the 'Save and Close' dialog box with the 'Settings by Character Set' tab selected. The 'Advanced' sub-tab is active, displaying 'MIME settings by character set group' for 'English'. The settings are organized into 'Inbound Message Options' and 'Outbound Message Options'.

☐ For outbound message options below use all possible choices (Advanced users)

MIME settings by character set group: English

Settings for English

Inbound Message Options

Font Options

HTML Proportional: Default Serif

HTML Mono-spaced: Default Monospace

HTML Size: 12

Plain Text: Default Monospace

Plain Text Size: 10

Outbound Message Options

	Character Set	Encoding
Header:	US-ASCII	None
Body:	US-ASCII	None

Advanced Inbound Message options provides you with control over non-MIME messages or a MIME message with an unknown character set. They additionally allow you to define alternate character set aliases for inbound messages.

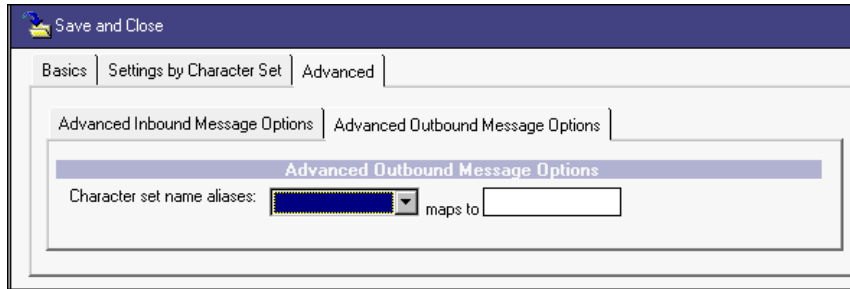
The screenshot shows the 'Save and Close' dialog box with the 'Settings by Character Set' tab selected. The 'Advanced' sub-tab is active, displaying 'Advanced Inbound Message Options'.

Advanced Inbound Message Options

For non-MIME messages or MIME messages with an unknown character set, 8-bit character set is assumed to be: Default

Character set name aliases: maps to

Advanced Outbound Message Options similarly provide you with a mechanism to map character set name aliases for outbound messages.



More information on MIME can be found in Chapter 9, “Messaging.”

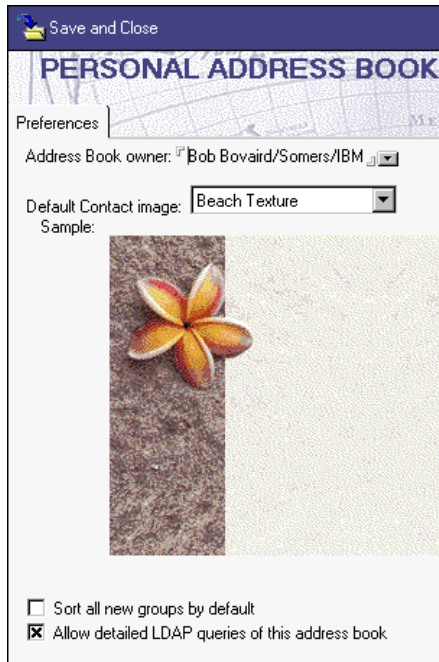
Temporary export certificates

In Notes 4.5 and 4.6, you can create temporary export certificates, but this is done from within your mail, and the certificates are stored in a folder called Temporary Export Certificates. This feature has been moved to your PNAB. The information on the certificates has not changed.

Preferences

A new tools action pull-down and action bar menu item called Preferences has been added to the PNAB. When you select this item you are able to:

- Customize the owner name of the PNAB
- Select the default contact image
- Specify if you want all new groups to be sorted
- Allow detailed LDAP queries of this address book



Address book owner

In Release 4.5 or 4.6, an Address book owner was defined when you created a new address book. This was maintained in the profile document. The address book owner now resides on the Preferences tab.

Default contact image

This preference allows you to specify a logo when you create new contacts.

Sort all new groups by default

Select this check box if you want to sort all of your groups automatically, as you create or update them.

Allow detailed LDAP queries of this address book

Selecting this check box will allow you to perform detailed searches through the Address dialog box when sending a memo. Using LDAP is described in detail in Chapter 19, "Using new R5 features."

Additional pull-down menu actions

To remove all address book preferences and reset them to the defaults, use the action which is only available from the action pull-down menu, titled Remove Address Book Preferences.

Another action available only from the action pull-down menu lets you retrieve certificates from your home server by selecting Retrieve Certificates from Home Server.

Dynamic configuration

An administrator can now update certain information in your personal address book, like proxy information. This is discussed in greater detail in Chapter 21, “User administration.” Updates are checked when each user connects to the server. They are done in the background without disrupting the users.

Summary

This chapter covered aspects relating to the Personal Name and Address Book.

The R5 Personal Name and Address Book template has been enhanced to improve navigation and to provide data in a neat tabbed table format. A large number of fields have been added which will come in very handy if you are using some of the new R5 server enhancements. Account documents are probably the biggest single change to the PNAB.

Chapter 19

Using new R5 features

Your R5 Domino server may have some new features which Release 4.5 or 4.6 users will not be able to take advantage of until those users upgrade their client to R5. The items described in this chapter will only be available to R5 clients, and only if the Notes administrator makes them available to you. These features are:

- Password recovery
- Directory services
- Using LDAP to view directories
- Domain search
- Notes Minder
- Summary

Password recovery

Password recovery is something that your administrator can optionally set up for you in R5. If this feature is in place in your company, you can use this process to reacquire your user ID or password if you forget your password or misplace your ID. If you forget your password, password recovery will still work even if you are *not* LAN connected, though you do need to have access to a telephone and your administrator. This process is documented for both the user and the administrator in Chapter 21, “User administration.”

Directory services

In R5, your administrator may set up a directory catalog (dircat) on your server or on another Domino server in your enterprise. A directory catalog consolidates and compresses multiple users, groups, resources and mail-in databases from one or more Domino Directories into a single database.

Note Administrators should refer to Chapter 8, “Directory services,” for more information on setting up dircats in their environment. Information on how to push this directory information to the client is in Chapter 21, “User administration.”

Your Notes administrator will most likely configure and place a directory catalog on each mail server in your enterprise. When you use type-ahead addressing, if your administrator has configured your server to use a dircat, you will search the dircat automatically.

If a dircat does not reside on your mail/home server, you can configure your current Location document to look for a dircat on another server. The server name is specified on the Servers tab, in the Domino Directory server field.

This directory catalog may contain a large subset of fields that originated from the Domino Directory (public name and address book). This dircat will, however, be very small in comparison to the source Domino Directories. One of the fields that will most likely be included in the dircat is the public encryption keys and certificates. When you send a note and have your Location document configured to resolve on the server, you will now be able to send an encrypted message to anyone in the dircat.

Mobile directory catalog

Your administrator may also build a mobile directory catalog that contains only a minimal subset of fields, which you can then replicate to your workstation in order to perform local type-ahead addressing. This mobile directory generally only contains enough fields to perform basic address resolution, but could contain more fields to help you distinguish one person from another or, for instance, telephone numbers (or any other information that is stored in the Domino Directory).

This new directory occupies minimal disk space, so that mobile users can easily maintain a copy on their local hard disks. Using the mobile directory catalog will provide you with optimal addressing performance. You will immediately find this beneficial in Location documents, where you previously went to the server to perform name resolution.

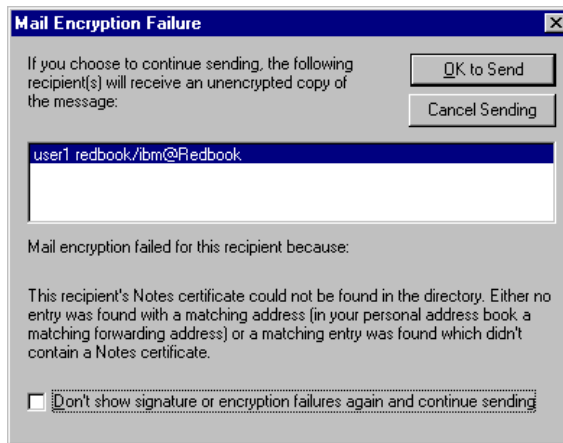
To keep the size down, your administrator will most likely not include the public encryption key as part of the mobile directory catalog. Depending on how much encryption is used in your company, it is probably generally true that most people have a number of Person documents in their Personal Name and Address Book (PNAB), and that most of those documents do not have the person’s public key information. This occurs because most people add others to their PNAB either manually or by using the add sender to address book function.

Just-in-time encryption

For those who are using a dircat, a new feature called just-in-time encryption is available in R5. It solves the problem for mobile users who want to send an encrypted message when in Island mode (not connected to a server) and who do not have all of the public keys for all of the intended recipients of the note in their personal address book.

If you send an encrypted message to a person and their public key does not reside in either your PNAB or in your local dircat, just-in-time encryption will take over behind the scenes. Your Notes R5 client will note that you have a directory catalog installed, and when you replicate your outgoing mail, it will use the public key from either the Domino Directory or dircat on the server.

In Release 4, you would not even be able to send the message; instead you would receive a pop-up informing you that you were missing the keys for the intended recipients. This pop-up has been updated in R5, but you should only see this if you are connected to the LAN and the keys are not present in either the Domino Directory(s) or dircat.



Just-in-time encryption should eliminate the need for the mobile user to constantly be updating the public key information in their PNAB.

Process flow

To show how just-in-time encryption works, let's take a closer look at the process. The steps described in this example are valid if you have a local dircat and you are in Island mode (not connected to the LAN):

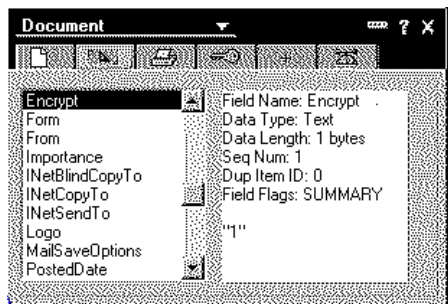
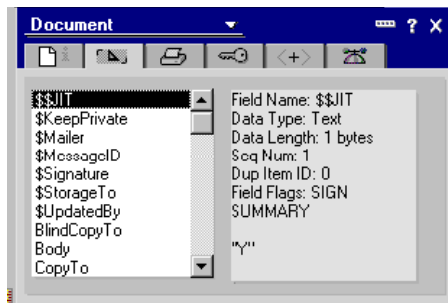
1. You create a message, address it, add a subject and enter some information into the body field. The body field is the only field that is going to get encrypted. You select Delivery Options, and check Encrypt.

2. You send the memo. The following messages are displayed on the status bar:

- Signing mail
- Mail held in outgoing mail.box for transfer to 1 user
- Encrypting document
- Encrypting document with your public key

The memo is then placed in your outgoing mailbox.

3. If you open the document properties for that memo in your outgoing mailbox, you will notice a new field called \$\$JIT. It indicates that the mail will be encrypted when the outgoing mail is released and the encrypt field is set to 1.

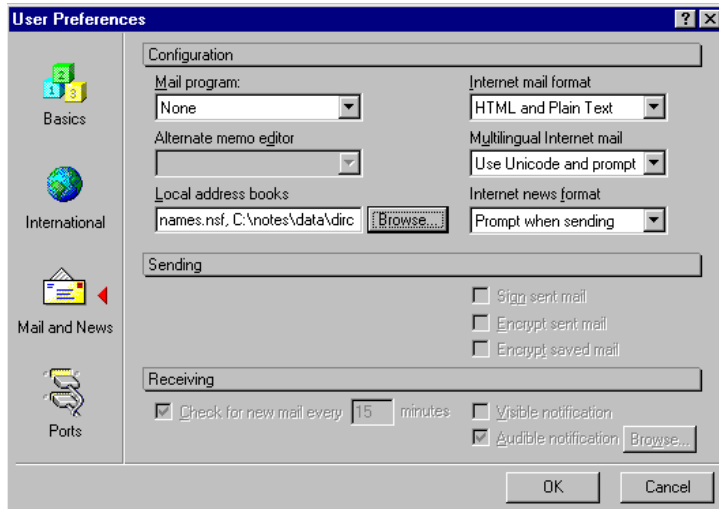


Setting up a mobile directory catalog

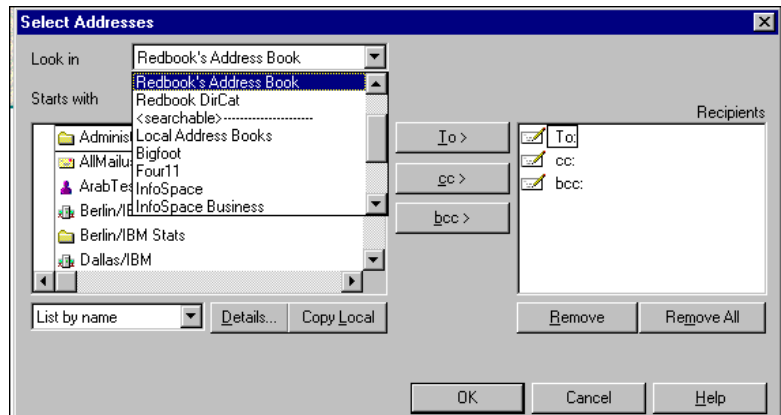
Two steps are required to enable the mobile directory catalog on your client:

1. Find out from your administrator the location of the mobile dircat and replicate that database to your workstation.

2. From the pull-down menu, choose File - Preferences - User Preferences. Select the Mail and News navigator, and add the physical name of the local replica of the dircat you just replicated to the Local address books line. It is recommended that you use the Browse button to select the local dircat. Your PNAB should be listed, followed by a comma, and then the name of your local dircat.



If this is set up properly, when you create a memo and then click the Address action bar button or drop-down menu, you should see both your personal address book and your local dircat listed above the “<searchable>----” line.



When properly set up, type-ahead addressing will now find more names.

Note You will need to recycle your Notes R5 client for type-ahead addressing to work.

Using LDAP to view directories

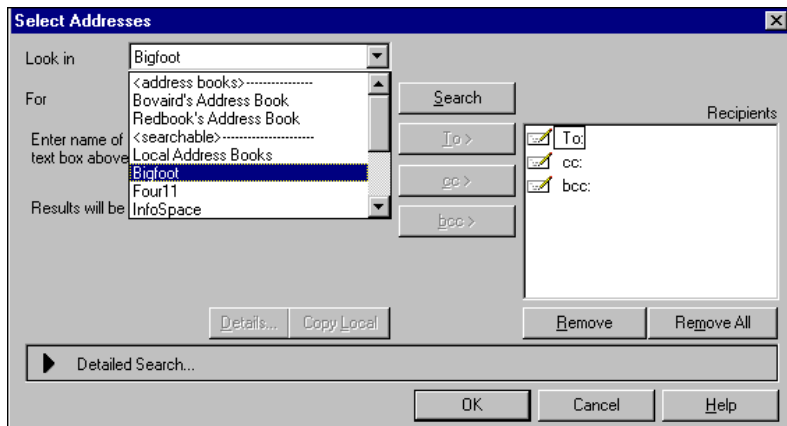
Directories external to your Domino environment can be searched via LDAP from your R5 client if they reside inside your firewall or you have access to directories outside your firewall. Some account documents are provided to new R5 users for some external directories like Bigfoot, Four11, InfoSpace, Internet Directory, Switchboard, and Verisign. Chapter 18, “Personal Name and Address Book” takes a closer look at the configuration of account documents. The account document specifies the location of the server where the directory information is stored.

Note By default, you can also search your Personal Name and Address Book via LDAP after you have migrated to an R5 client. This is controllable via the Tools preferences, which are also discussed in Chapter 18.

Accessing information that is stored in a directory via LDAP is different from using your Notes client to look up information in the Domino Directory. In Lotus Notes, you can open a Domino Directory. The Domino Directory, when opened, will present you with a list of all the names in that directory. You can then search for a specific name and open the Person document.

When directory information is accessible via LDAP, you *first* specify what to search for, and then it returns the directory information related to that search. You are *not* presented with a list of names in the directory upfront.

When you create a memo and then use the address action, you will find that any directories for which you set up an LDAP account will be listed under the <searchable>---- line.



After your Select Addresses dialog box appears, when you switch from either your PNAB or Domino Directory, you will notice that the “Starts with” field will change to “For,” and a Search button is also provided. In addition to searching for the name in that input box, you can optionally expand the Detailed search and then enter multiple fields and conditions for which to search. The fields to search include:

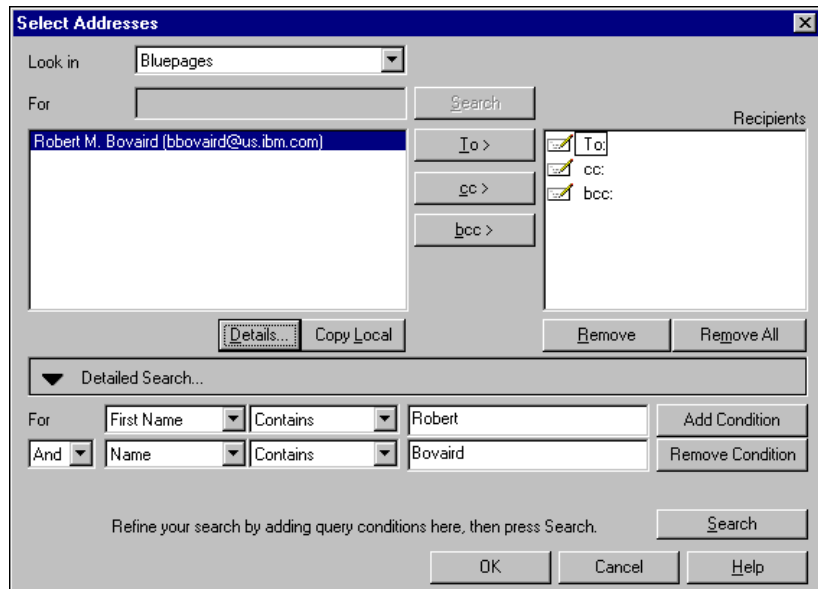
- Name
- Mail Address
- Last Name
- First Name
- Location
- PhoneNumber
- Company
- Department
- City
- Street Address

The conditions within each field that you can specify are:

- Contains
- Doesn't Contain
- Is
- Isn't
- Begins with
- Ends With
- Sounds like

Then you specify a word or phrase.

All search results are presented in a left-hand window, and once selected, you can move them into the to, cc or bcc fields. You will find that LDAP allows you to easily refine your search by adding additional conditions.



Domain search

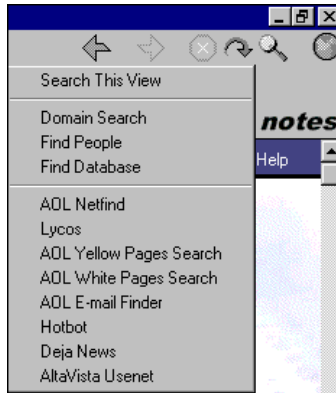
In R5, if your Notes administrator configures domain search for your company, you will have the ability to search for textual strings in a number of Domino databases, files and Web pages. A domain search's domain indexer uses the CATALOG.NSF to determine which databases and/or file systems are to be included in the full-text index. The Notes client determines which Domain Catalog to use, based on the Catalog/Domain Search Server field in the Location document, and uses the default setup profile on the server to populate the Catalog/Domain Search Server field. (Instructions for creating a User Setup Profile are available in the Domino Administrator online help and in Chapter 21, "User administration.")

You can search all databases in the domain which have multi-database indexing selected. Domain search uses the Access Control Lists (ACLs) set on those databases, and the results only include Notes documents to which you have access. Domain search provides dynamic indexing of new databases that are flagged to be included, and a centrally located index of all databases.

Your administrator can optionally elect to include files and Web pages to the search, in addition to Domino databases. Domain search will have full access to any of these files or Web pages since ACLs cannot be placed on them. For more information on the specific file types supported, refer to Chapter 12, “System databases.”

Assuming that domain search is made available to you, you first will need to put the name of the server in your current location. Choose File - Mobile - Edit Current Location, click the Servers tab, and then fill in the Catalog/domain server field. Once this is done, you should be able to access domain search via the down arrow that is to the left of the Open URL button on the Navigator bar.

When you select the down arrow, you will be presented with a drop-down menu. Domain search is one of the options that you can select. If it is grayed out, then either your Location document server entry is incorrect, or domain catalog is not available to you.



Once you select Domain Search, a new window is opened with the Domain Search bar in it. You can then search for:

- Documents
- Databases

Documents

On document searches, you can specify words in the “Containing” field and select Search. You can specify whether you want Terse results, or Detailed results, and you can further request that the search results be sorted by relevance, oldest first or newest first.

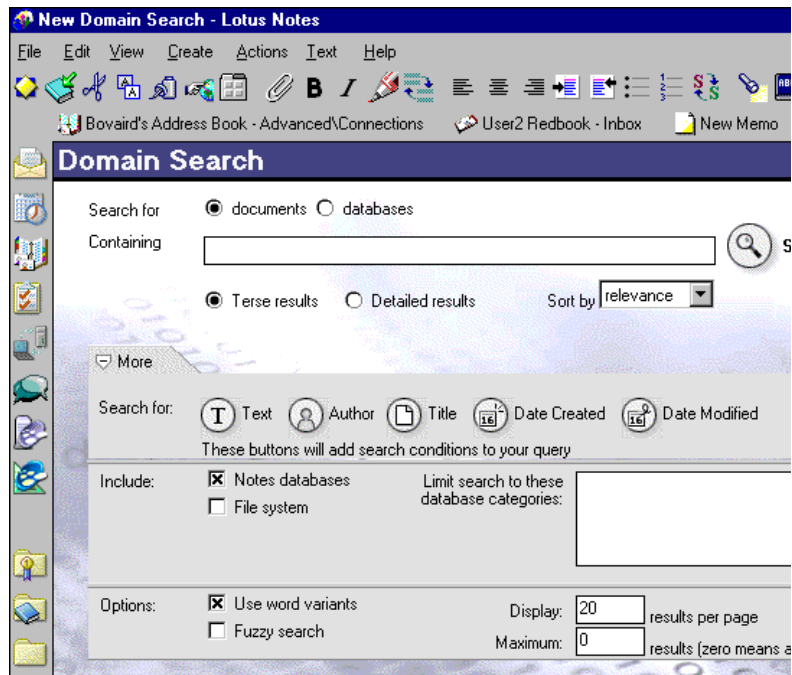
If you expand the collapsed “More” section, it will provide you with the ability to search by:

- Text
- Author
- Title
- Date Created
- Date Modified

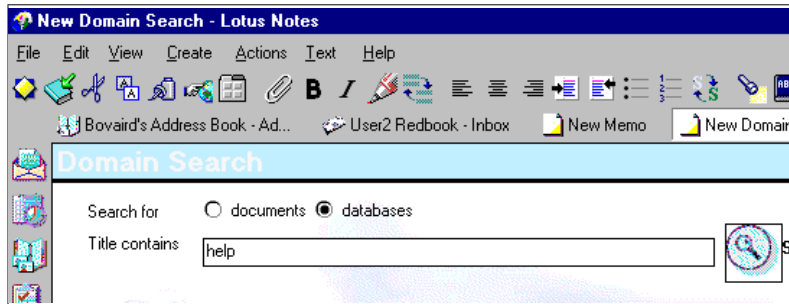
You can specify to include:

- Notes databases
- File system

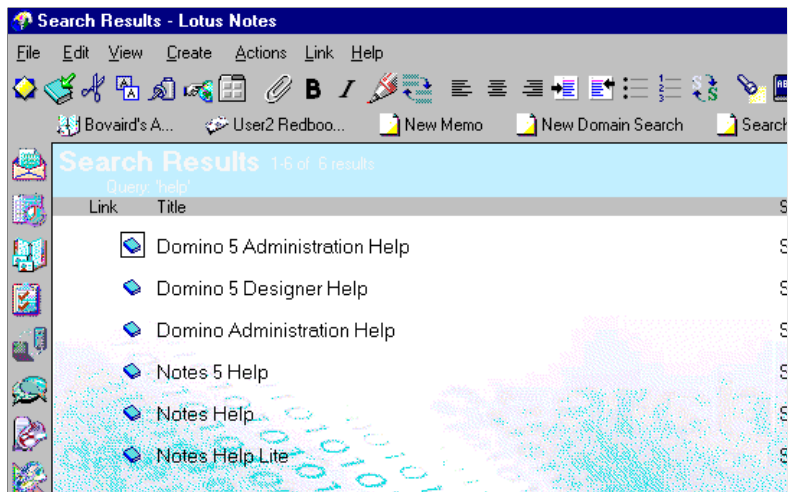
You can limit search to these database categories, and select among the additional options “Use word variants,” and “Fuzzy search.” In this section, you can even define the number of results to display per page, along with the maximum number of results.



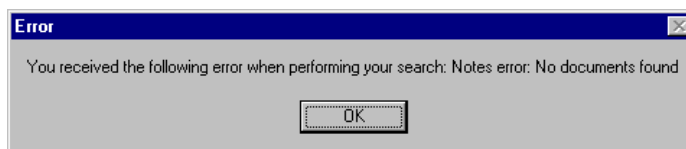
If you are just searching for a database name, you can search for a database that contains a specific word or words.



The results will be presented to you as a list of links.



Among the errors that you may encounter is: No documents found.



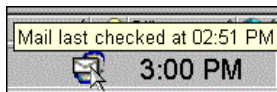
Notes Minder

Notes Minder is a new feature for the R5 client, which allows you to check your mail, and monitors your calendar alarms without launching the Notes client. When Notes Minder is active, it displays an icon in your Windows system tray. The icon changes depending on the current status of your mail database.

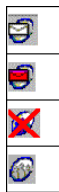
To start Notes Minder, choose Start and go to your Lotus Applications folder. Select Notes Minder, and you will be prompted for your Lotus Notes password. Enter your password. You may also want to add Notes Minder to your Windows startup folder so it is launched when you bring up your machine.

Notes Minder checks the mail and schedule of the last user who launched Notes from that client machine. If you share a computer, launch Notes first using your user ID before you use Notes Minder to ensure that it checks your mail and calendar.

Once the Notes Minder icon is displayed in your Windows system tray, different variations of the icon appear, depending on what Notes Minder is reporting. If you hover your mouse over a Notes Minder icon, a text box displays your current mail status, or notifies you when it last checked your mail. If you double-click the Notes Minder icon, it will launch Notes and open your mail database.



Four different icons will be displayed, informing you of the current status of your mail.



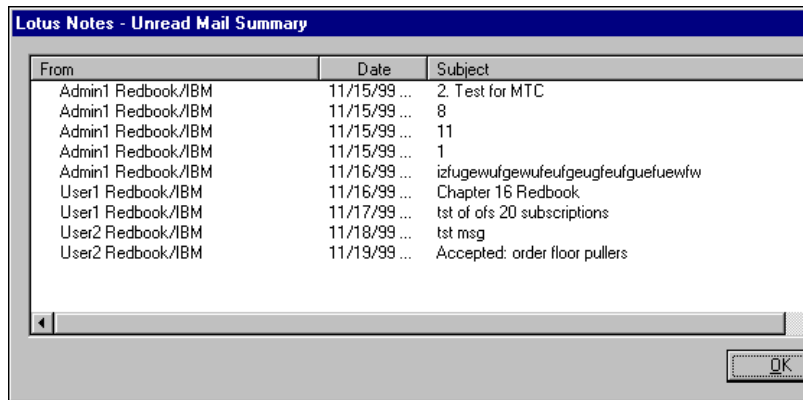
From top to bottom, the meaning of the icons is as follows:

- Standard Notes Minder icon with a white envelope — Notes Minder is active, there are no unread messages in your inbox.
- Notes Minder icon with a blinking red envelope — there are unread messages in your inbox.

- Red X over Notes Minder icon — cannot connect to home server.
- Picture of three people — Notes Minder is running, but paused. You will see this icon in combination with the blinking red envelope or you will see it when Notes Minder is on the Windows task bar, but is not enabled.

If you right-click the Notes Minder icon on your Windows system tray, the following options will be available to you:

- Open Notes — this will launch Notes for you.
- Check Now — this will check for unread messages.
- View Mail Summary — displays the sender, date and subject of unread messages. You can then determine whether or not you want to launch your Notes client to view your mail or a specific message. To read the full context of a message, double-click on that item. After you view the mail summary, this will change the Notes Minder icon to a white envelope.



From	Date	Subject
Admin1 Redbook/IBM	11/15/99 ...	2. Test for MTC
Admin1 Redbook/IBM	11/15/99 ...	8
Admin1 Redbook/IBM	11/15/99 ...	11
Admin1 Redbook/IBM	11/15/99 ...	1
Admin1 Redbook/IBM	11/16/99 ...	izfugewufgewufgeugfeugfuefw
User1 Redbook/IBM	11/16/99 ...	Chapter 16 Redbook
User1 Redbook/IBM	11/17/99 ...	tst of ofs 20 subscriptions
User2 Redbook/IBM	11/18/99 ...	tst msg
User2 Redbook/IBM	11/19/99 ...	Accepted: order floor pullers

- Properties — you can specify the type of alert you want to receive when new mail is received. Options include:
 - Audible notification
 - Show missed alarms
 - Visual notification for mail

You can also change the frequency of alerts by:

- Defining the interval between checks for unread mail
- Disabling checking
- Enabled — this will determine if Notes Minder is to check for unread messages. When checked, it is enabled. When unchecked, it is paused.
- Exit — this will close Notes Minder.

Subscriptions

Database subscriptions are discussed in Chapter 1, “Ease of using the Notes R5 client,” in the headlines section.

Summary

Some powerful new features are provided with the Domino server. It is up to your company whether or not to make them available to you. This chapter discussed at what the user needs to do to use these new enhancements.

Password recovery allows you to more easily reacquire your Notes ID and password if you lose or forget them.

Directory Catalog, once available on your server, helps you with type-ahead addressing, especially, if your company has many different domains and currently does not cascade name and address books or use directory assistance.

The mobile directory catalog enhances performance by allowing you to have all of the directory information on your local machine. Just-in-time encryption allows mobile users who are not connected to your enterprise to send encrypted mail, without having the public keys in their Personal Name and Address Book.

Many companies are moving towards storing directory information in X.500 directories. You can now configure your client to get address information via LDAP. Powerful search capabilities are provided using this protocol.

Imagine having the power to search for a word or a database name in a large number of databases and have the results be returned to you so that you can look at all of the different references on the subject. This function is now available for Domino Directories, and even files, through a new function called domain search.

Once you are working in Notes R5, you can immediately take advantage of Notes Minder and database subscriptions. Notes Minder informs you about new mail, even if you do not have the Notes client running. Subscriptions are ways to view information in a number of databases based on criteria you specify. The results are collected, and you view your subscriptions in one central place. You are no longer required to open up a number of databases to view the activity.

Chapter 20

Web mail, calendar, and to do lists

In Chapters 15, 16, and 17, we took a close look at the changes made to your mail, calendar, and to do's when accessing your Notes database from your R5 client. In this chapter, we take a similar look at accessing your mail database via a browser.

The R5 mail template, mail50.ntf, is made up of design elements that allow you to access your mail from either a Notes R5 client or via a browser. Both the Notes and the Web portions of the mail template were totally rewritten in R5. This chapter does not describe every change made, but gives you enough information to become familiar with the overall functionality you will have when accessing your mail, calendar, and to do's via a browser.

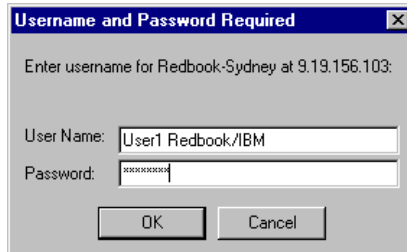
The intended audience for this chapter is users interested in understanding what the mail, calendar, and to do's will look like when accessed via a browser, and those who want to understand what changes have been made since Release 4.5 and 4.6.

This chapter discusses the following topics:

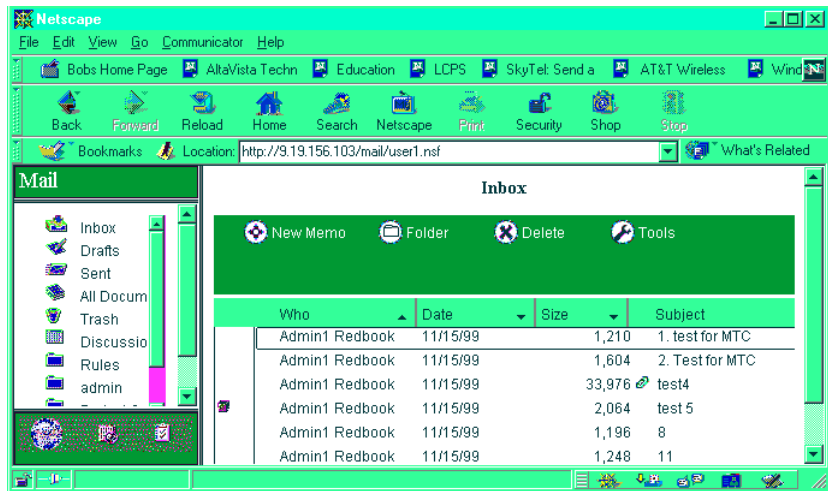
- Logon and user interface
- Views
- Forms
- Preferences
- Contact management and signatures
- Summary

Logon and user interface

Nothing has changed in R5 relative to the logon procedure. When you access your mail via a browser, you will be prompted for your User Name and HTTP Password.









In order to open your mail database, after the R5 mail template has been applied to it, you will need to have a Java-enabled browser. After you are logged on, you will immediately notice that Java applets are extensively used throughout. Java applets were not used in Release 4.5 or 4.6 mail templates.



A view applet is used in the largest frame. It displays a list of your documents. The view applet also supports:

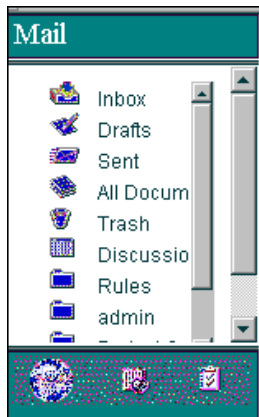
- The DEL key to mark documents for deletion
- The F9 key to refresh the view
- Drag & Drop column sizes

- Sort capability, by clicking the column header
- Selecting multiple documents

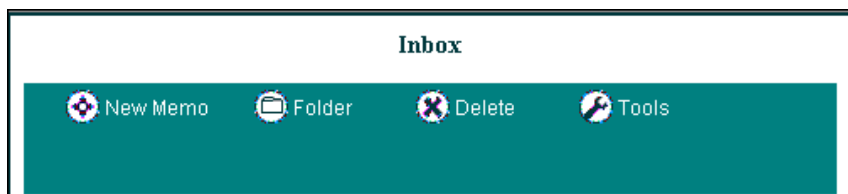
 New Memo  Folder  Delete  Tools				
Who	Date	Size	Subject	
<input checked="" type="checkbox"/>	Admin1 Redbook	11/15/99	1,210	1. test for MTC
	Admin1 Redbook	11/15/99	1,604	2. Test for MTC
	Admin1 Redbook	11/15/99	33,976 	test4
	Admin1 Redbook	11/15/99	2,064	test 5
	Admin1 Redbook	11/15/99	1,196	8
	Admin1 Redbook	11/15/99	1,248	11

An outline applet is used in the left frame. This outline applet works closely with the view applet to display the appropriate documents when you select a folder or view. It also provides scrollbars.

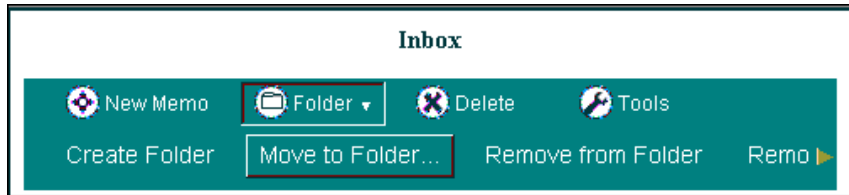
Switchers are also provided on the bottom of the left frame. They allow you to navigate between your mail, calendar, and to do's.



The DominoActionbar applet is used to provide you with an action bar. It works closely with the view applet; when you select an action from the action bar, it will perform the appropriate action in the view applet.



When you move your cursor over an action, it is enabled for the particular view. Its appearance changes to a two dimensional button. If you click on it, it will perform that action. If drop-down menus are available on an action, a down arrow is displayed. When the arrow is selected, additional actions will be displayed below the action bar.



Since Java applets are used, performance is enhanced. After the applets are downloaded to the browser, they run locally. Tasks such as cycling through documents in a view do not require the browser to send commands back to, or receive them from, the Domino server.

Views

When a browser user connects to a Domino server to which a Release 4.5 or 4.6 design is applied, they are provided with a list of available views and folders. When the user opens one of the views, they are provided with a list of basic forms. They can then either create a memo, meeting, task or phone message.

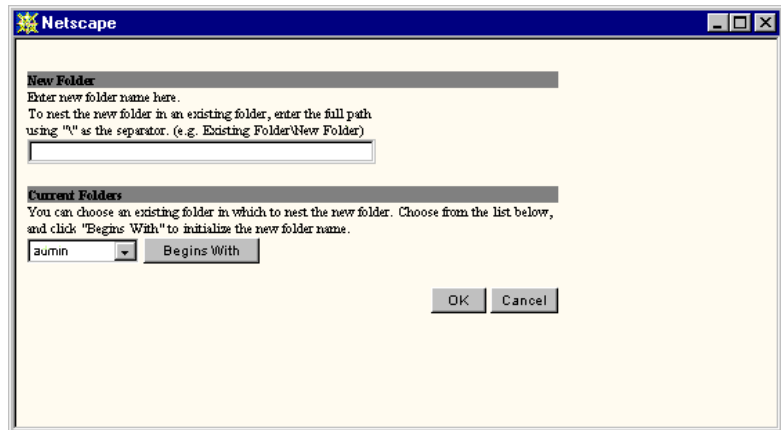
When you access your mail via a browser to which an R5 mail template design has been applied, you will see only the views and folders that are applicable to your mail. As in the Notes R5 client, switchers are provided. They allow you to switch to views and folders for either your calendar or to do's.

Mail

The views that you see in your mail are consistent with those that you would see if you opened it via a Notes R5 client. The actions you can take while in the view vary, depending on the view you are in. While most of the actions are identical to those available to the R5.0.2 client, some of the actions are slightly different when accessed from a browser. Views and actions in your mail now include:

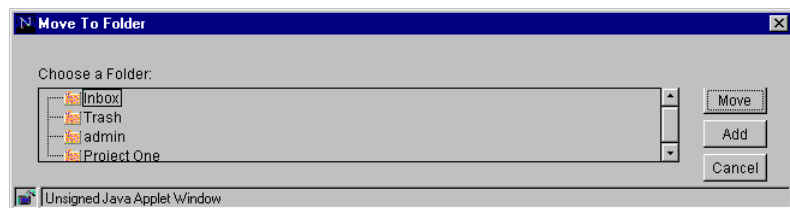
- Inbox
 - New Memo — previously called Memo in Release 4.5 and 4.6
 - Folder
 - Create Folder

When selected, a separate pop-up window will be presented to you. You can either specify a new folder, or you can look to see if you already have a folder by that name. Instructions on how to create nested folders are also provided.



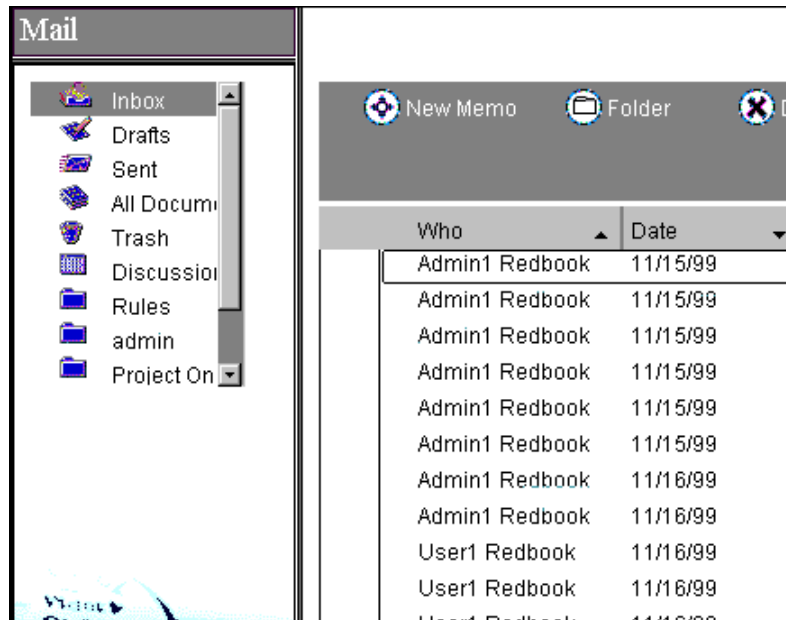
- **Move to Folder**

When selected, a separate pop-up window will be presented to you. You can specify the folder or view to which you can move or add the document.



- **Remove from Folder**
- **Remove Folder**
- **Delete**
 - Delete — previously called Trash when the mail file was using Release 4.5 and 4.6 mail templates
 - Empty Trash

- Tools
 - Preferences (discussed in detail in the Preferences section)
 - Search
 - Help



- Drafts

Actions available in the Drafts view are identical to those in the Inbox view.
- Sent

Actions available in the Sent view are identical to those in the Inbox view.
- All Documents

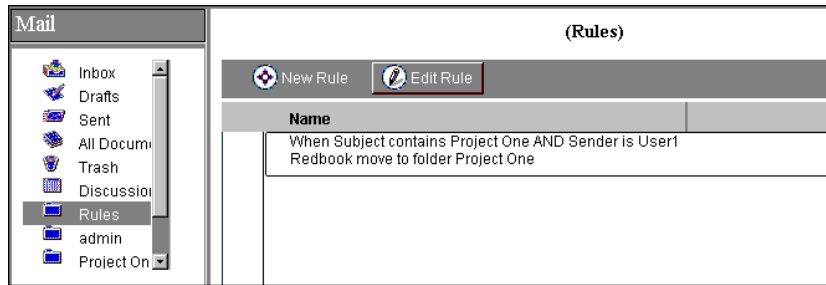
This view was called All in Release 4.6. Actions available in the All Documents view are identical to those in the Inbox view.
- Trash

Empty Trash is now available to you from this view.
- Discussion Threads

Actions available in the Discussion Threads view are identical to those in the Inbox view.
- Rules

This is a new view for R5. The same rules that you can set up from the Notes R5 client can also be done via a browser. See Chapter 15, “Mail,” for more information on rules. Actions available to you include:

- New Rule — new to R5
- Edit Rule — new to R5



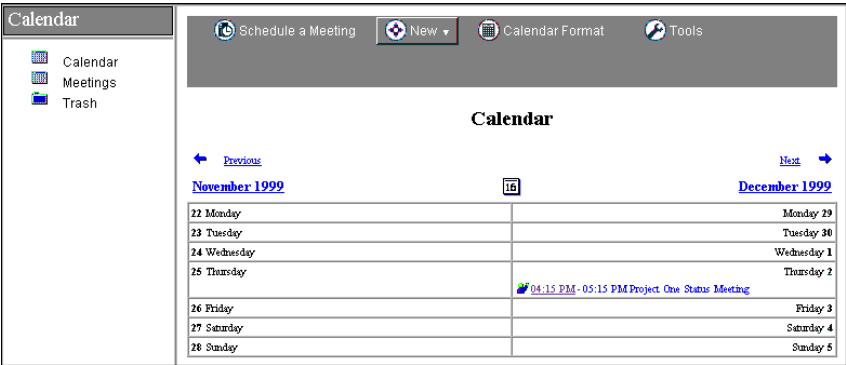
- Any folders you may have.

Actions available to you while you are displaying a folder are identical to those in the Inbox view.

Calendar

You can select the Calendar switcher to access your calendar. The following views are available:

- Calendar
- Meetings
- Trash



Note To do's will now appear on your calendar. See Chapter 17, “to do lists,” for more information.

The following actions are available from the action bar on both the Calendar and Meetings views:

- Schedule a Meeting

In Release 4.5 and 4.6, this was called Meeting...

- New
 - Appointment
 - Anniversary
 - Reminder
 - Event

All of these actions in Release 4.5 and 4.6 required you to switch from a meeting to one of these different types.

- Calendar Format
 - One Day — new to R5
 - Two Days
 - One Week
 - Two Weeks
 - One Month

Note The ability to change to different calendar formats is only available from the Calendar view, not the Meetings view.

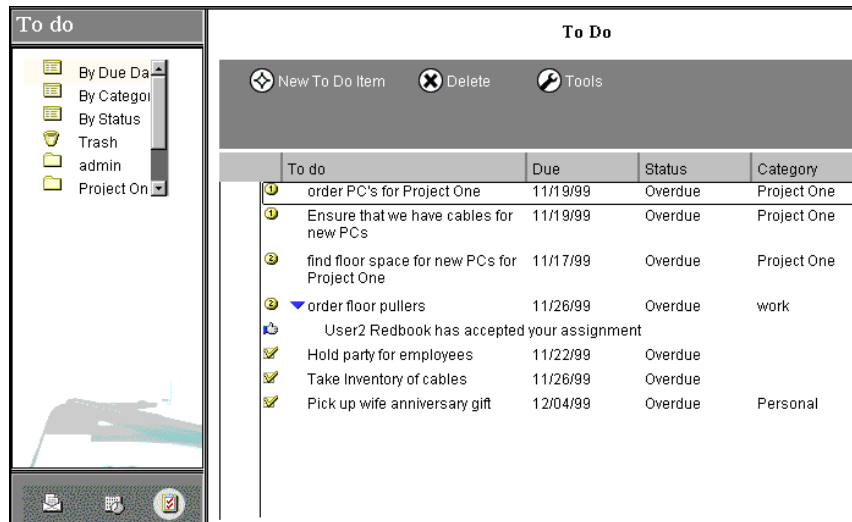
- Tools
 - Preferences
 - Help

To do

When you click the to do switcher, the following views are available:

- By Due Date — new to browsers on R5
- By Category
- By Status — new to browsers on R5

- Trash
- Any folders you may have



The following actions are available from the action bar in the By Due Date, By Category, and By Status views:

- New to do Item
- Delete
 - Delete — previously called Trash when mail file was using Release 4.5 and 4.6 mail templates.
 - Empty Trash
- Tools
 - Preferences
 - Search
 - Help

Forms

The following sections cover aspects relating to forms in R5.

Opening a new memo

In Release 4.5 and 4.6, when you opened a memo in your mail, you could edit, reply, trash, or file the memo. In R5, you can now use the following actions from the action bar:

- New Memo
- Forward — new to browsers on R5
- Reply
 - Reply
 - Reply to All — new to browsers via the R5 mail template
 - Reply with History — new to browsers via the R5 mail template
 - Reply to All with History — new to browsers via the R5 mail template
- Edit
- Delete — previously called Trash when the mail file was using Release 4.5 and 4.6 mail templates
- Go to
 - Inbox
 - Calendar
 - To do — new to browsers via the R5 mail template
 - Next
 - Previous
- Copy Into
 - New Task — new to browsers via the R5 mail template
 - New Calendar Entry — new to browsers via the R5 mail template

Note Depending on the size of your browser window and your screen resolution, some of the actions may be hidden. Use the arrows on the top line of the action bar to scroll the action bar to the right or left to access all of the action buttons.

You cannot file a memo while it is open, for example, while you are reading it. Exit from the memo before you file it. From the view, you can then select Folder - Move to Folder from the action bar.

Creating a new memo

When you create a mailable form (new memo, all forms of reply, and forward), the following actions are available to you on the action bar:

- Send
 - Send
 - Send and Save
 - Save as Draft
- Address

In R5, when you select Address from the action bar, another browser window is launched. Here you can select an address book to look in, specify a name to search for, and easily select one or more names and move them into the To:, cc:, or bcc: fields. You can also easily remove one or more addresses from any of those fields. This option was not available to Release 4.5 or 4.6 Web users.

Address - Netscape

Look in: Redbook's Address Book

Starts with:

Administration Requests

AllMailusers

ArabTest2/ARedbook/ARAB_IBM

Berlin/IBM Stats

Dallas/IBM Stats

Hamburg Stats/IBM

LocalDomainCatalog Servers

LocalDomainServers

NewYork/IBM Stats

Redbook, Admin1

Redbook, Test1

Redbook, Test3

Redbook, User1

Redbook, User10

Redbook, User2

Redbook, User3

To >

cc >

bcc >

< Previous

Next >

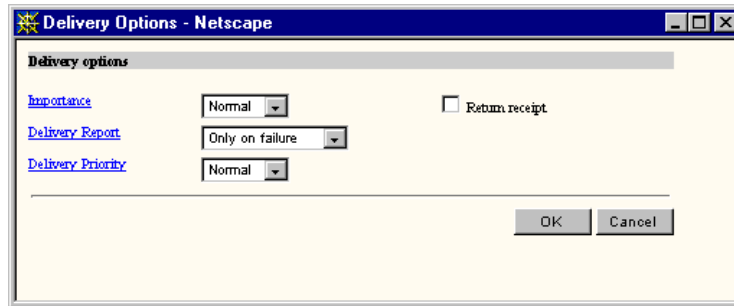
Remove

Remove All

OK

Cancel

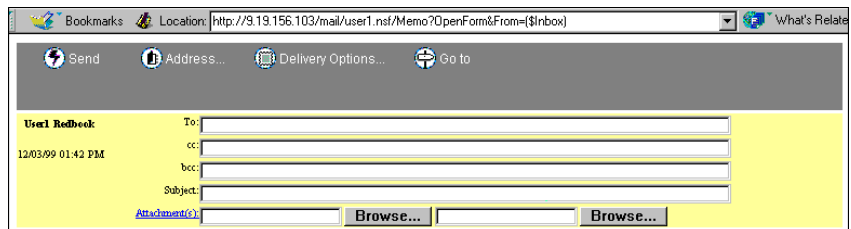
- **Delivery Options**
 - In Release 4.5 and 4.6, you could specify importance, delivery priority and delivery report from the Mail Options section on the form itself. In R5, when you select Delivery options, a new pop-up appears where you can specify any of those same options and also request a return receipt.



- **Go to**
This action will allow you to easily navigate to any of these views:
 - Inbox
 - Calendar
 - To do

Standard To:, cc:, and bcc: lines are available for addressing recipients. You can either use the address action bar button or you can manually populate these fields.

In Release 4.5 and 4.6, you could only send one attachment per memo. In R5 you can now send up to two.



Body of the memo

An InaBody Java applet is used for the body of the memo. In Release 4.5 and 4.6, you were constrained to using a monospace font, and you had no rich text controls. In R5, there are a number of buttons just above the body of the memo that give you access to a variety of formatting options. Each button activates a particular text property.

The available buttons include:

- **Bold**

You can either click the B button and start typing in bold text or highlight text that has already been typed and then click the bold button.

- **Italics**

You can either click the I button and start typing in italics or highlight text that has already been typed and then click the italic button.

- **Underline**

You can either click the U button and start typing underlined text or highlight text that has already been typed and then click the underline button.

- **Alignment**

Each time you click this button, it will toggle the line between centered, right and left align.

- **Paragraph**

You can either click this button to indent or outdent a line or paragraph. If you highlight a number of paragraphs, it will indent or outdent them all.

- **Lists**

Each time you click this button, it will toggle the current line between a bulleted list and a number list. You can also highlight a number of lines and apply the same action to all of them.

- **Create a link**

When this button is clicked, a new input box is presented on the top right of the body field, in which you can type a URL.

- **Enter international characters**

When this button is clicked, a new input box is presented on the top right of the body field, in which you can enter unicode values (decimal or 0xhex).

Additional controls are available next to the buttons. They include:

- Color

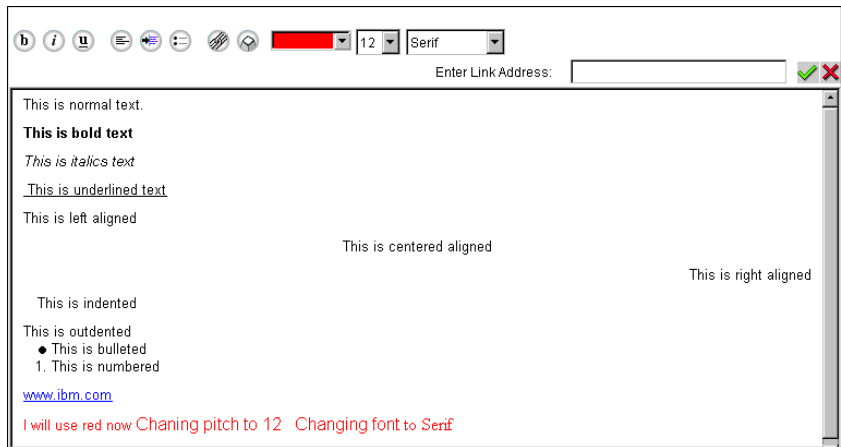
This field lets you select a text color from a palette of colors.

- Pitch

This field lets you specify a type size from a drop-down list of available pitches (type sizes).

- Fonts

This field lets you choose from Monospace, Sans Serif or Serif style text.



Caution If you send rich text to other Web mail users, they will need an HTML mail reader to see the rich text attributes of the message.

Creating a rule

Rules are new to R5. The purpose of rules is described in detail in Chapter 15, “Mail.” When you create a rule, you define the conditions and then the actions to be performed. The functionality made available to the Web user is identical to that of the Notes user with one minor exception: Web users cannot create a folder while creating a new rule.

Save and Close Discard Changes Go to

Rule is: ☒ On ☐ Off

Specify Conditions and Exceptions

New condition or exception:

IF contains

When mail messages arrive that meet these conditions:

Add New Condition
Remove Condition
Remove All Conditions

Except when:

Add New Exception
Remove Exception
Remove All Exceptions

Specify Actions

New action:

Perform the following actions:

Add New Action
Remove Action
Remove All Actions

Opening a calendar entry

When you open a calendar entry, the following actions can be taken:

- Edit
- Delete — previously called Trash when mail file was using Release 4.5 and 4.6 mail templates.

- Go to
 - Inbox
 - Calendar
 - To do
 - Next
 - Previous

The screenshot shows a web-based interface for viewing a calendar entry. At the top, there is a dark green header bar with three icons: a pencil for 'Edit', a crossed-out circle for 'Delete', and a magnifying glass for 'Go to'. Below these icons are five text links: 'Inbox', 'Calendar', 'To do', 'Next', and 'Previous'. The main content area has a light beige background. It starts with the text 'Calendar Entry:' followed by the title 'Appointment' in a larger, bold font. Below the title are three tabs: 'Basics' (which is selected), 'Meeting Invitations & Reservations', and 'Options'. The 'Basics' tab displays a form with the following fields:

- Subject:** Project One Status Meeting
- Location:** (empty)
- Entry type:** Appointment
- Begins:**
 - Start Date:** Thu 12/02/99
 - Start Time:** 04:15 PM
- Ends:**
 - End Date:** Thu 12/02/99
 - End Time:** 05:15 PM
- Chair:** User1 Redbook/IBM



 At the bottom of the form is a section labeled 'Description:' which is currently empty.

Opening an invitation to a meeting

Significant changes have been made in the area of workflow in R5 for both the Notes R5 client and the Web user. The actions which are now available to the Web user are as follows:

- Edit
- Go to
 - Inbox
 - Calendar
 - To do
 - Next
 - Previous

When you open an invitation, most of the information about that meeting is contained on the Basics page. You can find additional information about the meeting by selecting Meeting Invitations & Reservations or options.

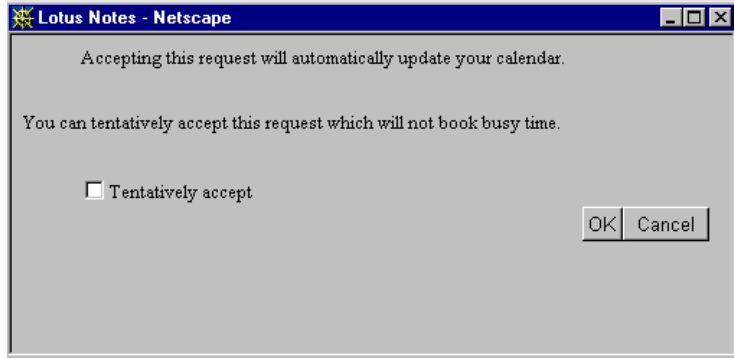
 Edit	 Go to	
New meeting request from User2 Redbook		
Basics	Invitees	Repeat Info
Begins: 12/07/99 02:15 PM Local Time Ends: 12/07/99 03:15 PM Local Time Title: deployment of servers in Dallas Location: -No room information available- Chair: User2 Redbook/IBM		
Description Lets discuss		

 Edit	 Go to	
New meeting request from User2 Redbook		
Basics	Invitees	Repeat Info
To (required): User1 Redbook/IBM, User3 Redbook/IBM cc (optional):		
Description Lets discuss		

If you are a recipient of a meeting invitation, you can then edit the calendar entry and perform the following actions on it:

- Discard Changes
- Respond
 - Accept

Once you accept, you can also select to tentatively accept an invitation. This is new to the browser user.



- Decline
- Delegate — new to browsers via the R5 mail template
- Counter Proposal — new to browsers via the R5 mail template
- Go to
 - Inbox
 - Calendar
 - To do

If you are chairperson for a meeting, the following options are available to you:

- Discard changes
- Save and Send Invitations
- Save as Draft
- Delivery Options
- Actions
 - Reschedule — new to browsers via the R5 mail template
 - Cancel
 - Confirm — new to browsers via the R5 mail template
 - View Status

- Scheduler
 - Check all Schedules

Using the scheduler, you can review the free times for the invitees. A new browser window is launched which allows the chairman to specify start and end date and time for the meeting. It also presents recommendations based on available time, and it presents a graphic display of invitees free time, charted by person or by day.

Free Time Search - Netscape

Meeting Time

Start Date: Start Time:

End Date: End Time:

Available Suggestions:

- 12/07 09:00 AM - 12:00 PM
- 12/07 01:00 PM - 02:15 PM
- 12/07 03:15 PM - 05:00 PM
- 12/08 09:00 AM - 12:00 PM
- 12/08 01:00 PM - 05:00 PM
- 12/09 09:00 AM - 12:00 PM
- 12/09 01:00 PM - 05:00 PM
- 12/10 09:00 AM - 12:00 PM
- 12/10 01:00 PM - 05:00 PM
- 12/13 09:00 AM - 12:00 PM
- 12/13 01:00 PM - 05:00 PM
- 12/14 09:00 AM - 12:00 PM

2 of 3 schedules available

If the meeting time is not OK for everyone, you can enter a new time above, or select a new time from the Recommended Times list. Then click Refresh.

Free Time Chart

by person

AM 8 9 10 11 12 PM 1 2 3 4 5 6 **03:30 PM Today**

	8	9	10	11	12	1	2	3	4	5	6
Everyone									Conflict	Free	Free
User1 Redbook/IBM									Free	Free	Free
User2 Redbook/IBM									Free	Free	Free
User3 Redbook/IBM									Free	Free	Free

☐ Busy
 ☐ Free
 ☐ OK
 ☐ Conflict
 ☐ No Info
 ☐ Info Restricted

Refresh OK Cancel

- Find Rooms
- Find Resources
- Go to
 - Inbox
 - Calendar
 - To do

New calendar entry

Three tabs are available on a calendar entry form. They are:

- Basics
- Meeting Invitation & Reservations
- Options

Basics

You can specify the following on the default screen (Basics):

- Subject
This was previously called Brief description in Release 4.5 and 4.6
- Start date
- Start time
- End date — new to browsers via the R5 mail template
- End time

This was previously accomplished by setting a duration in Release 4.5 and 4.6

- Entry type
- Location — new to R5

Caution Location should be specified only if all recipients of the meeting invitation are using an R5 based mail template. The location field is not present for R4 mail template users.

- Repeating

The ability to make a calendar entry repeat is new to browsers via the R5 mail template. Several new options are available, including the ability to specify how often the entry repeats (for example, daily or weekly) along with the duration. The window is refreshed and the options changed depending on your selections.

Repeat Information - Netscape

How

Daily Every day

Weekends

If the date occurs on a weekend: Don't Move

Duration

Starting: Mon 12/06/99 to 5 for Day(s)

OK Cancel

Document: Done

- Description

This was previously called Detailed description in Release 4.5 and 4.6.

Calendar Entry:
Meeting

Basics [Meeting Invitations & Reservations](#) [Options](#)

Subject: Location:

Begin: Start Date: Start Time: Entry type:

Ends: End Date: End Time: ☒ Repeats

Description:

Meeting Invitations & Reservations

When you click the Meeting Invitations & Reservations hotspot, you can specify the following:

- Invite:
- cc (optional):
- bcc (FYI only) — new to browsers via the R5 mail template
- Reserve rooms — new to browsers via the R5 mail template
- Reserve resources — new to browsers via the R5 mail template

Address book lookup icons are provided for the addressee lines above. Resource reservations are also provided where you can look up the available resources from the servers.

The screenshot shows a web-based form titled "Meeting". At the top, there are three tabs: "Basics", "Meeting Invitations & Reservations" (which is selected), and "Options". Below the tabs, there are several input fields with labels: "Invite:", "cc (optional):", "bcc (FYI only):", "Reserve rooms:", and "Reserve resources:". Each label is followed by a text input field. Below these fields is a "Description:" label followed by a text area containing the text "Meeting logistics are as follows".

Options

Two options are available when you click this hotspot. They are:

- Pencil in — new to browsers via the R5 mail template
- Mark private — new to browsers via the R5 mail template

The screenshot shows the same "Meeting" form, but with the "Options" tab selected. Below the tabs, there are two checkboxes with labels: "Pencil In" and "Mark Private". To the right of each checkbox is a description: "Time will appear free to others." for "Pencil In" and "Others cannot see any details about this event." for "Mark Private". Below these options is the same "Description:" label and text area as in the previous screenshot, containing the text "Meeting logistics are as follows".

Opening a to do

When you open a to do from one of the to do views, the following actions are available to you:

- Edit
- Delete — previously called Trash when the mail file was using Release 4.5 and 4.6 mail templates.

- Go to
 - Inbox
 - Calendar
 - To do
 - Next
 - Previous

If you are a recipient of a to do, you can edit the calendar entry and perform the following actions on it:

- Discard Changes
- Respond
 - Accept — previously, you needed to select RSVP Action to get this option in Release 4.5 or 4.6
 - Decline — previously, you needed to select RSVP Action to get this option in Release 4.5 or 4.6
 - Delegate — new to browsers via the R5 mail template
 - Counter Proposal — new to browsers via the R5 mail template
- Go to
 - Inbox
 - Calendar
 - To do

If you are the chairperson for the to do, when you edit your group to do, the following actions are available to you:

- Discard changes
- Save and Send Invitations
- Save as Draft
- Delivery Options
- Actions
 - Reschedule — new to browsers via the R5 mail template
 - Cancel
 - Confirm — new to browsers via the R5 mail template
 - View Status
- Completed

- Go to
 - Inbox
 - Calendar
 - To do

Creating a new to do

Three tabs are available on a to do entry form. They are:

- Basics
- Participants
- Options

Basics

You can specify the following on the default screen (Basics):

- Subject

This was previously called Brief description in Release 4.5 and 4.6.
- Starts
- Due
- Priority
 - High
 - Normal
 - Low
 - None
- Type
 - Personal to do
 - Group to do — new to R5
- Repeating

The ability to make a to do entry repeat is new to browsers via the R5 mail template. The repeat settings are identical to those available for repeating calendar items.

- Description

This was previously called Additional Information in Release 4.5 and 4.6.

Participants

When you click the Participants hotspot you can specify the following:

- Enter new assignments below.
 - Assign To:
 - cc:
 - bcc: — new to browsers via the R5 mail template

Note You can only specify assignments if you change the type on Basics to be a Group to do.

The screenshot shows a web interface for managing tasks. At the top, there is a dark green header bar with three buttons: 'Discard Changes' (with a red X icon), 'Save and Send Assignments' (with a lightning bolt icon), and 'Save as Draft' (with a floppy disk icon). Below the header, the main area has a light gray background. On the left, there is a vertical sidebar with the title 'To Do' and three tabs: 'Basics' (highlighted in blue), 'Participants' (active), and 'Options'. The main content area is divided into two sections. The top section is titled 'Enter new assignments below' and contains three input fields labeled 'Assign to:', 'cc:', and 'bcc:'. The bottom section is titled 'Description:' and contains a large, empty text area. At the bottom of the window, there is a standard Windows taskbar with a clock and some icons.

Options

One option is available when you click this hotspot, specifically:

- Mark private — new to browsers via the R5 mail template

The screenshot shows a web browser window displaying the 'To Do' form in Lotus Notes. At the top, there is a dark green header bar with three buttons: 'Discard Changes' (with a red X icon), 'Save and Send Assignments' (with a lightning bolt icon), and 'Save as Draft' (with a floppy disk icon). Below the header, the title 'To Do' is displayed. Underneath the title are three tabs: 'Basics' (highlighted in blue), 'Participants', and 'Options'. The 'Options' tab is active, showing a checkbox labeled 'Mark Private' with the text 'Others cannot see any details about this event.' to its right. Below this is a large text area labeled 'Description:'. At the bottom of the window, there is a status bar with a small icon on the left and the text 'Applet dominoActionBar running' on the right.

The following to do features were available to Web users using either Release 4.5 and 4.6, and are not available in 5.0.2.

- Delivery Report
- Delivery Priority
- File Attachments

Preferences

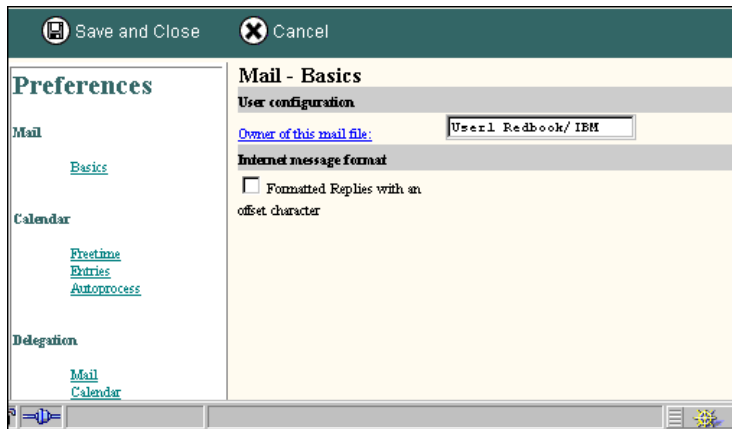
A number of preferences can be set through the browser. The preferences interface has changed from R4.6 and some of the preferences are new to R5. User preferences can be specified for:

- Mail
- Calendar
- Delegation

Mail

On the Basics tab, you can specify:

- Owner of the mail file
- Internet message format
 - Format replies with offset character — new to browsers via the R5 mail template



Calendar

Under Calendar Preferences, you have three options:

- Freetime
- Entries
- Autoprocess

Freetime

In this window, you can specify:

- Days and hours you are free.
- Which people can view your available free time.

The screenshot shows the 'Calendar - Freetime' preferences window. The left sidebar has a 'Preferences' section with links for 'Mail', 'Calendar', and 'Delegation'. Under 'Calendar', there are links for 'Freetime', 'Entries', and 'Autoprocess'. The main area is titled 'Calendar - Freetime' and has a sub-section 'Availability'. It contains a list of days from Sunday to Saturday. Sunday is unchecked, while Monday through Friday are checked. Each checked day has a corresponding time slot field, all of which are set to '09:00 AM - 12:00 PM, 01:00 PM - 05:00 PM'. Saturday is unchecked. Below the days, there is a link that says 'Only the following users can request my free time information:' followed by an empty text box. The window has 'Save and Close' and 'Cancel' buttons at the top. The status bar at the bottom indicates 'Applet dominoActionBar running'.

Entries

In this window, you can specify:

- Appointment/Meeting duration in minutes
- Anniversary yearly repeat in years — new to browsers via the R5 mail template

The screenshot shows the 'Calendar - Entries' preferences window. The left sidebar is identical to the previous window. The main area is titled 'Calendar - Entries' and has a sub-section 'Defaults'. It contains two fields: 'Appointment/Meeting time duration:' with a value of '60' and 'Anniversary yearly repeat:' with a value of '10'. The window has 'Save and Close' and 'Cancel' buttons at the top. The status bar at the bottom indicates 'Applet dominoActionBar running'.

Autoprocess

In this drop-down box, you can specify some actions regarding meeting invitations. Choose from the following actions, all of which are new to browsers via the R5 mail template:

- Do not automatically process meeting requests
- Autoprocess meeting request from all users
- Autoprocess meeting request from the following users
- Forward meeting requests to the following person

The last two options also provide you with an input box in which to specify the pertinent persons.

Additionally, two check boxes are provided:

- Remove event requests from my inbox after I respond to them — new to browsers via the R5 mail template
- Prevent event replies from appearing in my inbox — new to browsers via the R5 mail template

The screenshot shows a web-based preferences dialog. The top bar contains 'Save and Close' and 'Cancel' buttons. The left sidebar, titled 'Preferences', has two main sections: 'Mail' and 'Calendar'. Under 'Mail', the 'Basic' link is highlighted. Under 'Calendar', the links 'Freetime', 'Entries', and 'Autoprocess' are listed. The main content area, titled 'Calendar - AutoProcess', features a dropdown menu currently set to 'Do not automatically process meeting requests'. Below this are two unchecked checkboxes: 'Remove event requests from my inbox after I respond to them' and 'Prevent event replies from appearing in my inbox'.

Delegation

Under Delegation, you have two options:

- Mail
- Calendar

Mail

You can specify that particular people and groups can perform the following actions:

- Read my mail and read my calendar — new to browsers via the R5 mail template

- Read and send mail on my behalf and read my calendar — new to browsers via the R5 mail template
- Read, send, and edit any document in my mail file — new to browsers via the R5 mail template
- Delete mail and calendar entries (allowed for those who can send or edit mail) — new to browsers via the R5 mail template

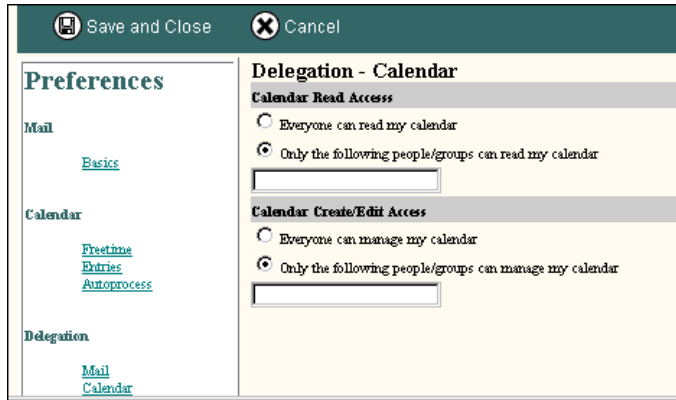
Calendar

Two options are available under Calendar Read Access. Both are new to browsers via the R5 mail template. You can either specify:

- Everyone can read my calendar
- Only the following people/groups can read my calendar. This action also provides an input box in which to specify the people and groups.

Two options are available under Calendar Create/Edit Access. Both are new to browsers via R5 mail template. You can either specify:

- Everyone can manage my calendar
- Only the following people/groups can manage my calendar. This action also provides an input box in which to specify the people and groups.



Contact management and signatures

At the time of writing this redbook, we used R5.0.2 in our test environment. Some enhancements which are noteworthy will be coming in the 5.0.2a release that are currently documented in the 5.0.2 Release Notes.

According to the R5.0.2 Release Notes:

Web mail now has a personal address book of its own. You can save information about contacts in this address book. You can also create groups of contacts for mailing lists. This new feature in R5.0.2 allows Web users to create contact and group information for use from a Web browser only.

The address book documents are stored in the user's mail file and are in no way connected to the traditional Personal NAB found on the regular Notes client. This feature was added to allow Web users some minor contact management only. Contacts and groups created in the Web Address Book are not updated into the user's Personal Address Book, and vice-versa. This feature is designed for users who access their mail through a browser only.

Also beginning in R5.0.2, you can specify text to be added as a signature block to a memo or reply. Choose Actions - Tools - Preferences and click the Signature tab.

Summary

This chapter covers aspects relating to Web mail, calendar and to do lists.

The mail template provides the means to work with your mail, calendar and to do's from either your Notes R5 client or via a browser. Prior to R5, the functionality provided to the Web user fell short of the functions that you could perform from the Notes client. The new R5 mail template provides most of the same functionality to the Web user that it does to the Notes client, via a Java interface.

Part 5

Spotlight on R5 administration

While Part 3 of this redbook focused on the server functionality and Domino services, such as the Domino directory, messaging, Web, and transaction logging, Part 5 puts the spotlight on the administration of the Domino R5 server.

We discuss daily procedures performed by the administrator, such as user administration and monitoring, and point out how those procedures in R5 differ from R4.

We provide details on the password recovery feature, both from the administrator as well as the end user perspective, and touch on the registration interface. Then we describe how to upgrade your existing monitoring architecture, and how to make use of the new R5 monitoring enhancements.

Chapter 21

User administration

Many new functions were introduced with Domino R5 to help administrators manage their user administration tasks. This chapter covers the following administration topics:

- User registration
- User configuration
- Group management
- Password recovery
- Alternate name languages
- Summary

Note Make sure that you have the Certification Log database in place (certlog.nsf). It must be created by hand on your registration server. The database is used by almost all the procedures described here. You can establish a Domino environment and register certifiers, users, and servers without a certlog.nsf. However, if you want to rename the user or implement password recovery, you will need the certification log.

User registration

As mentioned in Chapter 3, “Ease of administration,” user registration has gone through major changes from R4.6 to R5. The interface has been redesigned, and the registration information is now stored in a separate database. In this section, we discuss the changes and enhancements in detail. You can find additional information on user registration in the Domino R5 Administration online help.

Administration Preferences - Registration

In the Administration Preferences, some default settings can be applied to registration. The configurations made are domain specific, which means that for every domain you define in your Administration Preferences, you can define different registration settings.

For information on the domain settings in the Administration Preferences, refer to Chapter 22, “Monitoring.”

The settings include:

- Registration Server

Specify the administration server that holds the Certification Log database (certlog.nsf).

- Certifier ID

If you have permanent access to a user certifier, you can select the most frequently used one here.

- Mail Options

You can specify a mail server with the mail template for registration.

Note The mail template is now used from the mail server, and is no longer used from the local client.

- ID File Setting

For user, server and certifiers, you can specify a directory, either local or on the network, where ID files will be stored on registration. Also, a default password strength can be applied to the different types.

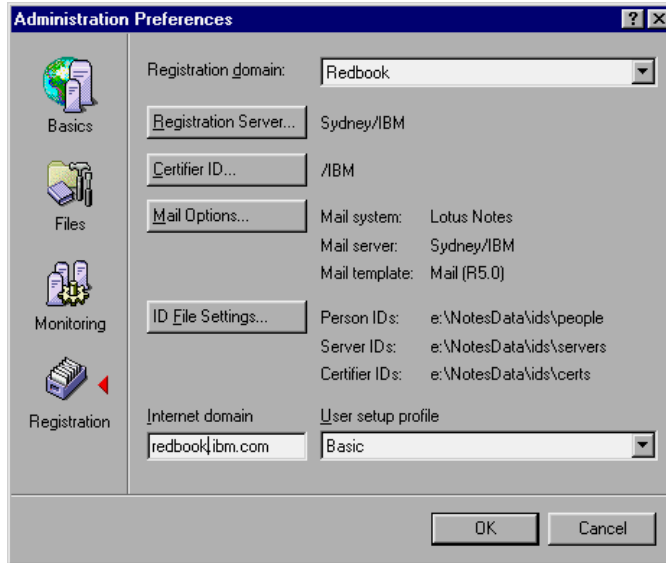
- Internet Domain

This Internet domain will be used for the Internet addresses of registered persons.

- User Setup Profile

You can apply a standard Setup Profile to the registered users.

All the settings can be changed during the actual registration.



Be sure to define these settings on the Administrator clients. They help to simplify the registration process. For example, when you start registration, the right certifier will be used, and there is no need to browse through your file system to find it.

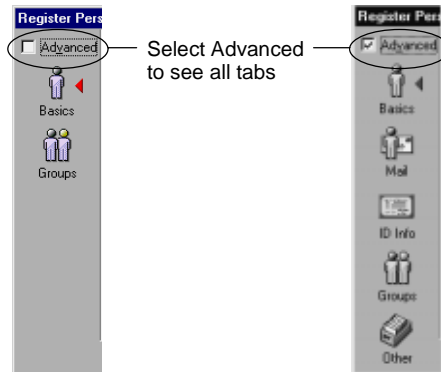
Registering a Person

The registration can be accessed in several ways:

1. On the People & Groups tab, select Tools - People - Register.
2. On the Configuration tab, select Tools - Registration - Person.
3. From the menu bar, select People - Register or Register from file, when on the People & Group tab.
4. From the menu, select Configuration - Registration - People or People from file, when on the Configuration tab.

Note The menu bar changes dynamically according to the tab you are on.

Using any of these methods will get you into the registration interface. To see all the available settings, we however, recommend that you select Advanced in the upper left corner. This setting cannot be selected by default; it has to be done every time you open the registration interface.



Some general information you enter for a person will be used for the next entry as a default. This applies only as long as you are in the Register Person dialog. Once you close it and open it again, only the items specified in the Administration Preferences are taken as defaults.

Note The title bar of the Register Person dialog box must read Register Person — New Entry for you to enter information for a new person. Otherwise your changes apply to existing persons.

Basics

The user password is defined on the Basics tab. The quality of a password is no longer determined by its length. In R5, a Password Quality Scale is introduced that ranges from 0 to 16 or Weak to Strong. The quality is not only determined by the length of a word but also by the complexity of the word. Words found in the dictionary file of Notes (*.dic) are considered weak. This does not include words added to your user-specific dictionary. For advice on the different quality levels, refer to the Domino 5 Administration online help.

The password can also be used as the Internet password.

Note The Internet password is only set at registration time. Later changes to the Notes password will not be reflected in the Internet password.

You can choose from a variety of different formats and separators for the Internet address.

Mail

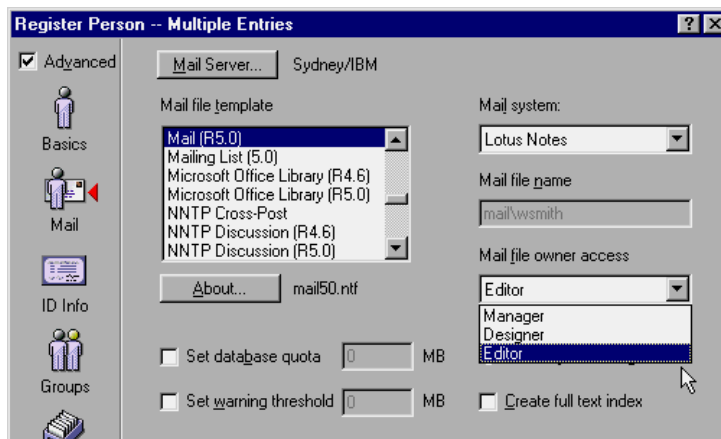
A remarkable change in the R5 mail template is reflected in the registration interface under Mail. End users no longer need Manager access to their databases to allow other people access to their calendars or mail. End user access can be Manager, Designer, or Editor.

With Manager access, users are not only able to edit their own Access Control List (ACL), but could also (accidentally) delete their mail file, which means a restore effort for the support staff. Giving users Designer or Editor rights in R5 prevents them from deleting their mail file. However, they are still able to manage their access rights for other people. Managing access rights is described in Chapter 15, “Mail,” and Chapter 16, “Calendar and Scheduling.”

Among the features that can be used at different access levels are the following:

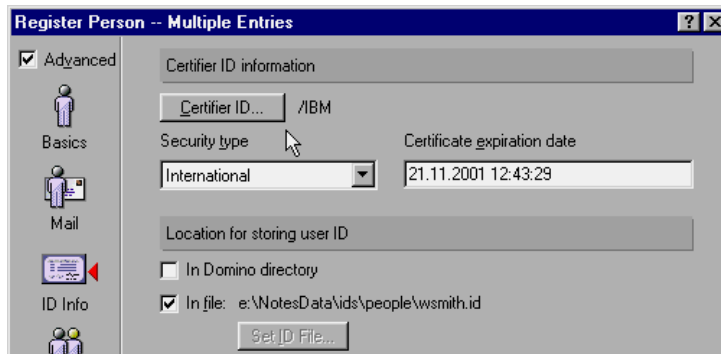
- Editor access allows for mail and calendar delegation (R4 required Manager access to perform this task).
- Designer access is required to enable the Out of Office agent.
- Manager access is required to edit and save archive settings.

This can be configured in the Mail file owner access section, as shown in the following figure.



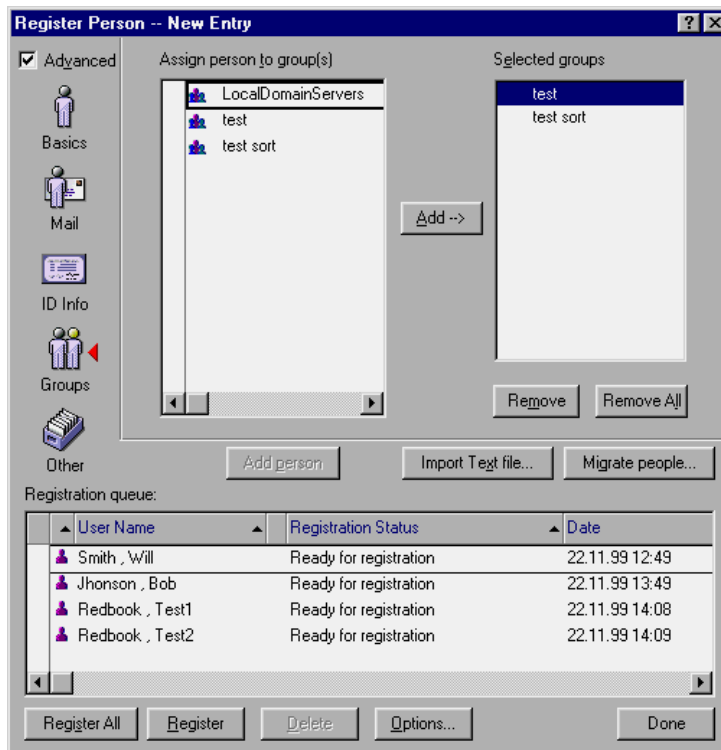
ID Info

The ID settings have not changed in R5. However, the new concept of using a registration queue allows you to specify different certifiers for different people and register them together in one batch job.



Groups

With the R5 registration interface, you can now automatically add users to previously defined groups during registration. In R4, you had to separately edit those groups and add users manually after they were registered.



Others

On the Others tab under Setup profile, you can only specify one setup profile at registration time (using the R5.0.1b Administrator client). However, in R5, you can add more than one setup profile to the Person documents.

Furthermore, you can specify the Alternate name language for the user. This is discussed in a later section of this chapter.

The synchronization between Notes users and NT users is out of the scope of this book. Refer to the Domino R5 Administration online help for details.

Register Person -- Will Smith

☒ Advanced

Basics

Mail

ID Info

Groups

Other

Setup profile: Basic

Unique org unit:

Location:

Local administrator: #SysAdmin

Comment:

Choose an alternate name language to enable alternate name and org unit

Alternate name language: (None)

Alternate name:

Alternate org unit:

☐ Add this person to Windows NT

Windows NT user name:

Add person to Windows NT group:

Add person Import Text file... Migrate people...

Registration queue:

User Name	Registration Status	Date
Smith, Will	Ready for registration	22.11.99 12:49
Jhonson, Bob	Ready for registration	22.11.99 13:49
Redbook, Test1	Ready for registration	22.11.99 14:08
Redbook, Test2	Ready for registration	22.11.99 14:09
Redbook, Test3	Ready for registration	22.11.99 15:27

Register All Register Delete Options... Done

Text file registration

Refer to the Domino R5 Administration online help for more information.

Under “Registering users from a text file,” you can find a detailed description of this function. There are a few more parameters compared to the R4 function, such as the alternate name.

Migrating people

Domino R5 supports migration of users from the following mail programs:

- cc:Mail/Organizer 2.x
- LDIF
- Microsoft Mail
- Microsoft Exchange
- Netscape Messaging Server
- Novell Groupwise 4.x
- Novell Groupwise 5.x
- Windows NT

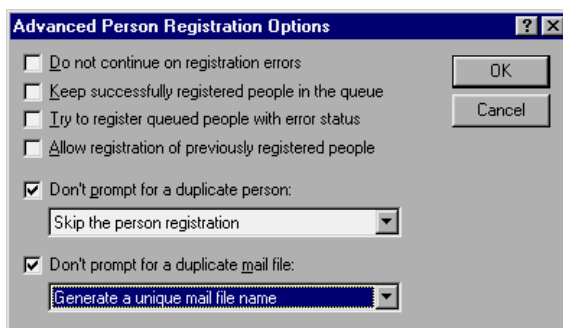
It is out of the scope of this book to discuss all the migration functionality. Refer to the Domino R5 Administration online help for details on this function. Also, there are several IBM Redbooks available on the migration topic. See the following Web sites for more information:

www.redbooks.ibm.com. or www.lotus.com/redbooks

Advanced Person Registration Options

When you click the Options button in the registration interface, you can configure certain actions at registration time. This can be very helpful for dealing with name similarities for users or mail files. Do be careful with those settings, though, because they can override existing persons or mail databases.

When registering a large batch of users at once, we have found that setting these configurations can speed up registration. This avoids prompting during the batch job, and you can deal with possible errors afterwards.

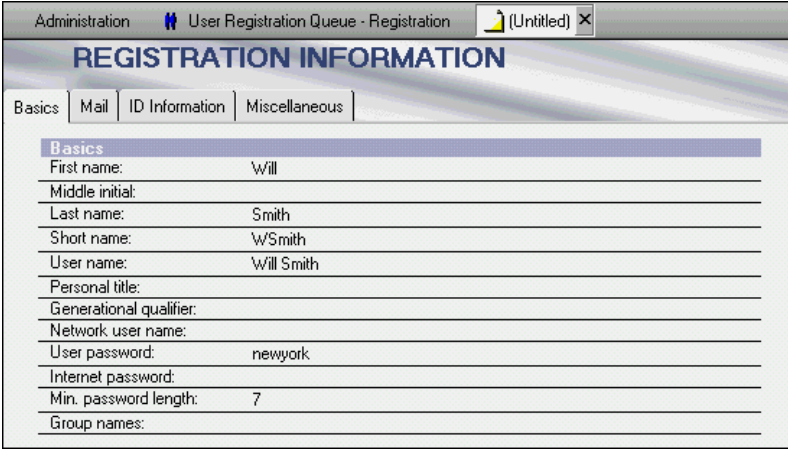


User Registration Queue

The User Registration Queue is a local database (userreg.nsf), which is automatically created on the Administrator client when registration is performed. The User Registration Queue can be used to store one or more person registration documents for later registration. Through the Advanced Person Registration Options, you can also keep successfully registered persons in the queue.

The database can be opened the usual way, and the documents can be viewed. However, it is not recommended to perform any configuration in the database. Use the registration interface for this purpose.

An example of a document from the User Registration Queue database is shown in the following figure.



The screenshot shows a web-based registration form titled "User Registration Queue - Registration". The form has a tabbed interface with "Basics", "Mail", "ID Information", and "Miscellaneous" tabs. The "Basics" tab is selected, showing a form with the following fields and values:

Basics	
First name:	Will
Middle initial:	
Last name:	Smith
Short name:	WSmith
User name:	Will Smith
Personal title:	
Generational qualifier:	
Network user name:	
User password:	newyork
Internet password:	
Min. password length:	7
Group names:	

The User Registration Queue allows for sequential workflow in your registration task since the registration information is backed up there. Registration can be started, stored in the User Registration Queue, and picked up again at any time.

Administrators achieve great flexibility through this database and the way it is used in the registration interface. Multiple Person documents can be selected and configured at the same time, for example, to change the certifier for a group of people. Information that is personal, and which therefore cannot be applied generally, is dimmed.

In the following figure, all the personal naming information is dimmed, but the Set Internet password and the Internet Domain are available.

Register Person -- Multiple Entries

☒ Advanced

Registration Server: Sydney/IBM

First name: Test1 Middle: M Last name: Redbook Short name: TRedbook

Password: password Password Quality Scale: Weak Strong

☒ Set internet password Password of any length accepted (1)

Internet address: Test1Redbook@redbook.ibm.com Internet Domain: redbook.ibm.com Format...

The Internet address (above) is created using the person's name (above), the internet domain and internet address format components. You can also edit the internet address directly. It must be unique in the address book.

Add person Import Text file... Migrate people...

Registration queue:

User Name	Registration Status	Date
Smith, Will	Ready for registration	22.11.99 12:49
Jhonson, Bob	Ready for registration	22.11.99 13:49
Redbook, Test1	Ready for registration	22.11.99 14:08
Redbook, Test2	Ready for registration	22.11.99 14:09

Register All Register Delete Options... Done

If an administrator saves registration information in the User Registration Queue, the password is encrypted, and can only be accessed by the administrator. Further editing or registration of the person can only be performed by the creator of the document in the User Registration Queue.

On a shared Administrator client, used by several administrators, only one User Registration Queue database is created, but the administrators can only access their own documents. This enforces security but it also makes registration batches done by multiple administrators hard to accomplish. A possible workaround could be achieved by using an anonymous administrator ID file for multiple persons.

The figure below illustrates the documents that are unavailable from a different administrator:

Register Person -- Will Smith

☒ Advanced

Registration Server: Sydney/IBM

First name: Will Last name: Smith Short name: wSmith

Password: Password Quality Scale: Weak Strong

☒ Set internet password Acceptable user password (7)

Internet address: Will.Smith@redbook.ibm.com Internet Domain: redbook.ibm.com Format...

The Internet address (above) is created using the person's name (above), the internet domain and internet address format components. You can also edit the internet address directly. It must be unique in the address book.

Add person Import Text file... Migrate people...

Registration queue:

User Name	Registration Status	Date
Smith, Will	This user cannot be registered, modified or deleted.	The 22.11.99 12:49
Jhonson, Bob	This user cannot be registered, modified or deleted.	The 22.11.99 13:49
Redbook, Test1	This user cannot be registered, modified or deleted.	The 22.11.99 14:08
Redbook, Test2	This user cannot be registered, modified or deleted.	The 22.11.99 14:09

Register All Register Delete Options... Done

User configuration

An introduction to the user configuration topic was given in Chapter 3, “Ease of administration.” In R4, the user configuration was done once for initial setup. In R5, the configuration procedure is dynamic and is done frequently. Information specified in User Setup Profiles by administrators on the server is transparently pushed to the clients for configuration of several parameters.

This feature requires R5 code on both the client and the server side.

Server side

On the server side, the information for user configuration is stored in User Setup Profile documents. The Person documents have a Setup profile(s) field that references the setup profiles applicable to that person. Notice that a person can have more than one setup profile configured. In that case, the profiles are executed in alphabetical order. Competing entries are overwritten. This can be very useful when deploying a set of configurations for all users, such as the proxy server; and more specific settings on a department level, for example, certain database links.



Client side

On the client side, the information from the setup profiles needs to be handled. This is done when users authenticate with their home servers. A special file (ndyncfg.exe for WIN32) is executed on the client and performs the dynamic configuration of the client.

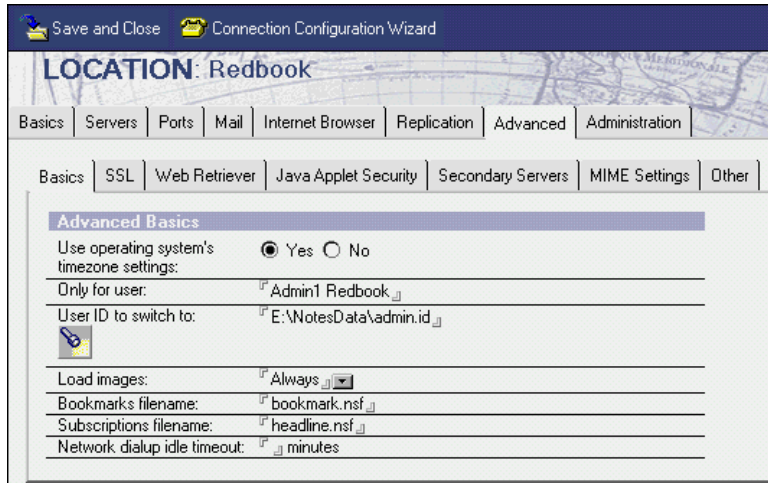
Note The R5 code level we were working with required a user interaction with the home server for the dynamic configuration to start. A scheduled background replication with the same server would not invoke the dynamic configuration.

Information can only be added or changed on the client. Again, in our lab environment, bookmarks, and replicas could only be added, not removed from the client. Also, the bookmarks were always placed in the Database folder. A different location could not be specified in the setup profile.

The client keeps track of the information it updates in its local cache. Once the setup profile on the server is implemented and local changes are done to the settings, they will not be overwritten by the server. To force this, the setup profile needs to be newly saved, so its date is refreshed. After that, the client will again read and implement the information from the server.

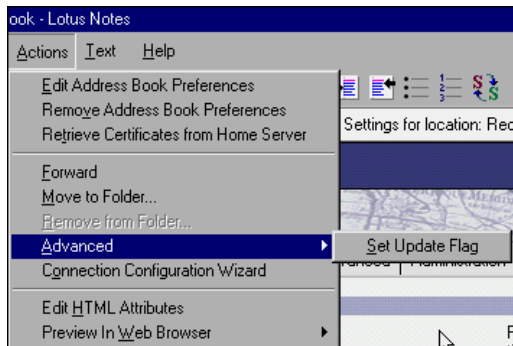
If the Notes client is used by more than one user sharing the same Personal Address Book, it needs to be determined which Location document belongs to which user. Otherwise, information intended for one user gets implemented in the Location document of both users. The Location document provides a field “Only for user.”

When you specify the user name in that field, only the setup profiles listed in the Person document will be considered by the dynamic client configuration.



Note You need to use the full name of a person, rather than just the common name. Otherwise, when you use this field, the location is not available in the pop-up prompt for location on startup. Neither can you see the location in the location bar on the bottom right-hand side.

There is also a hidden action that prevents the automatic update on the client. You need to be in your Location document and in edit mode for the action to appear in your menu. It is located under Action - Advanced - Set Update Flag in the menu bar.



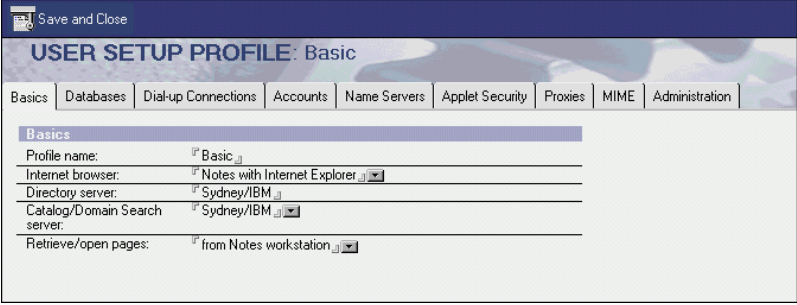
A message box will be displayed to verify the selection. This setting should be used by administrators only, although every user can access this action.

Note You can also disable dynamic client configuration through the local NOTES.INI parameter DisableDynConfigClient=1. This should be set on clients residing on a Domino server machine.

User Setup Profile

The information for the client is specified in the User Setup Profile documents. Configurable items include:

- Browser
- Directory server
- Catalog domain search server
- Passthru server
- Secondary server information
- Proxy server
- Java applet security
- Account document



Save and Close

USER SETUP PROFILE: Basic

Basics | Databases | Dial-up Connections | Accounts | Name Servers | Applet Security | Proxies | MIME | Administration

Basics

Profile name: Basic

Internet browser: Notes with Internet Explorer

Directory server: Sydney/IBM

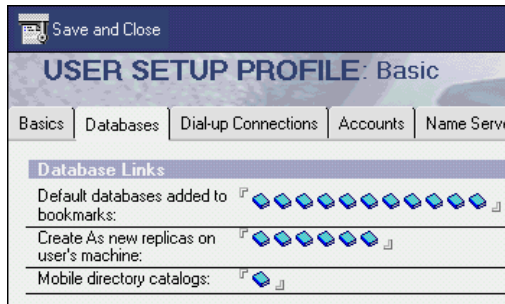
Catalog/Domain Search server: Sydney/IBM

Retrieve/open pages: from Notes workstation

Furthermore, bookmarks can be pushed to the client's bookmark.nsf. This is done by simply creating a database link and pasting that link in the "Default database added to bookmarks" field. These bookmarks will be placed in the Databases folder on the client.

Using the same method of pasting links, local replica stubs can be automatically created on the client by using the "Create As new replicas on user's machine" field. Notice that only a replica stub is pushed to the client. It takes a manual or scheduled replication with that server for the replica to initialize.

For traveling or disconnected users, a Directory Catalog stub can also be created on the client. In addition to the stub, the Mobile Directory Catalog name is added to the NOTES.INI of the client. This makes the catalog fully functional, without any user interaction.



Note Removing the link from the setup profile will not remove the bookmark or replica from the client.

In addition to the given fields in the User Setup Profile form, you can add customer-designed fields.

Choose the field you want to configure from the Location document. Insert the same field into the User Setup Profile form and change it to

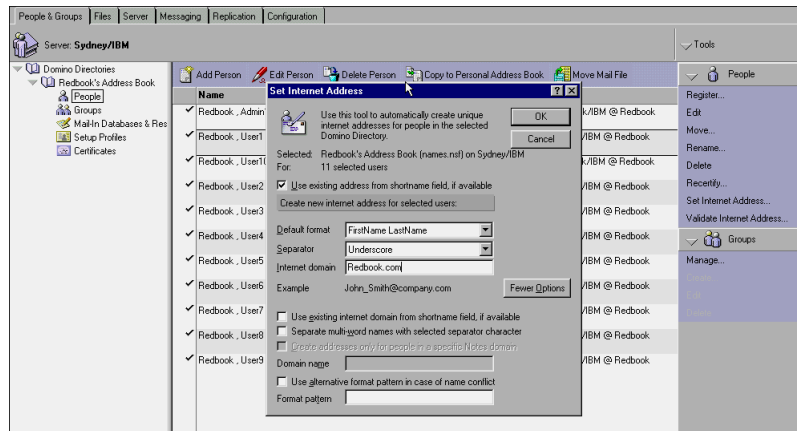
`LocAll<fieldname>`

Internet address

A new field for Internet Address is introduced in the Person documents in R5. In R4, the Internet Address was generally stored in the Shortname field. For SMTP routing, the Internet Address field needs to be populated. The R5 Administrator client provides a tool to set the Internet address, using the following steps:

1. Go to the People & Groups tab.
2. Select all the persons for whom you want to set the Internet address.
3. Click Set Internet Address under Tools - People.

4. In the Set Internet Address dialog box, choose your desired naming convention, or simply copy the entry from the Shortname field.

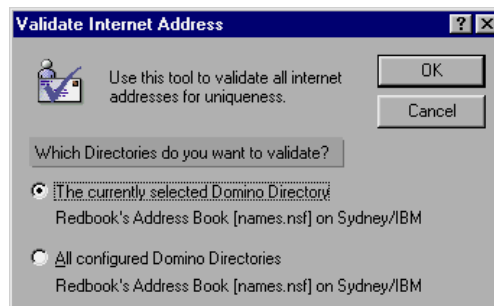


5. Click OK.

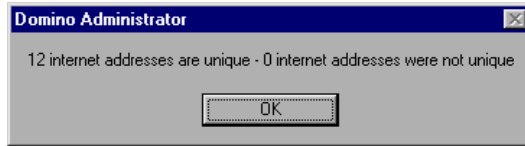
Note On the client side, the Internet mail address field in the Location document of the Personal Address Book is populated automatically by the server. This is done every time you update the Person document in the home server's Domino Directory, and the client then accesses the server.

You can also validate your Internet addresses across all the directories residing on your current server. The validation checks for uniqueness of your addresses. To invoke it, do the following:

- Click Validate Internet Address under Tools - People on the People & Groups tab.
- Select the desired directory option and click OK.

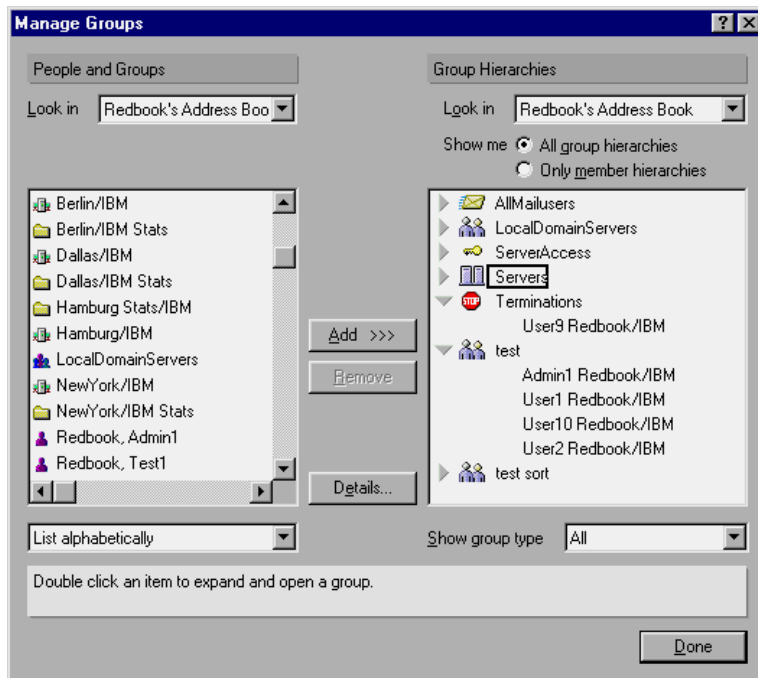


After the validation is completed, you will receive the results in a dialog box:



Group management

The Administrator client offers a new interface for group management. Group members can be added to, and removed from, existing groups. All types of groups are displayed and can also be selectively displayed. A great advantage of the new group management interface is the ability to show only those groups of which a selected person is a member. To access the group management from your Administration client, go to the People & Groups tab, and select Tools - Groups - Manage.



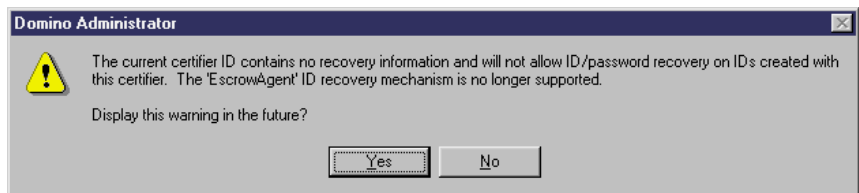
Password recovery

The password recovery function in R5 replaces the escrow agent familiar from Domino R4.x. There is no need for this user or group in the directory any more. Password recovery is based on adding administration passwords to the user ID at registration time, for later access and recovery. The administration password is saved as a cookie inside the user ID and *cannot* be used to actually work with the ID. Its only purpose is recovery.

Password recovery information should be applied to the certifiers used to register people, and the registered user IDs will inherit that information. This implies that every certifier can have its own set of password recovery information, which can be convenient in remotely administered environments. The number of administrators included in the password recovery information is eight at the most.

Password recovery can be imported into existing ID files, ensuring that your current environment can adopt this function. However, it is limited to at least R4 and hierarchical ID files. R3 ID files will have to be upgraded.

If you start working with your R4 certifiers on your R5 Administrator client, you will receive a notification, telling you that password recovery is not yet implemented and the Escrow agent is no longer supported.



Implementation

We want to give you a summary of the steps needed to implement password recovery in your environment when you upgrade to R5. Also, refer to the online help for Domino 5 Administration for details. Make sure that you have a certification log (certlog.nsf) on your registration server and the certificate entries for your certifiers in the Domino Directory.

1. Create and configure a mail-in database, which will store the backup copies of the ID files, and which can be accessed by the administrators for recovery information.
2. Select Edit Recovery information under Tools - Certification on the Configuration tab.

3. In the Edit Master Recovery Authority List, configure the following information:

- How many Recovery Authorities do you require?

Specify the number of persons needed for recovery. This will be the number of administrators a person has to call and get the recovery password from, when recovering an ID file.

- Current Recovery Authority

Add the administrators or help desk personnel who will perform ID recovery. A maximum of eight entries is allowed.

- Address

Specify the mail-in database address, where the registered ID files will be stored.

Edit Master Recovery Authority List

Add or change recovery authority names to allow ID and password recovery for IDs created with the certifier /IBM.

Specify the names of Recovery Authorities

How many Recover Authorities do you require?
(At least three are recommended)

Current Recovery Authorities

- Admin1 Redbook/IBM
- Test1 Redbook/IBM
- User1 Redbook/IBM
- User10 Redbook/IBM
- User2 Redbook/IBM
- User5 Redbook /IBM

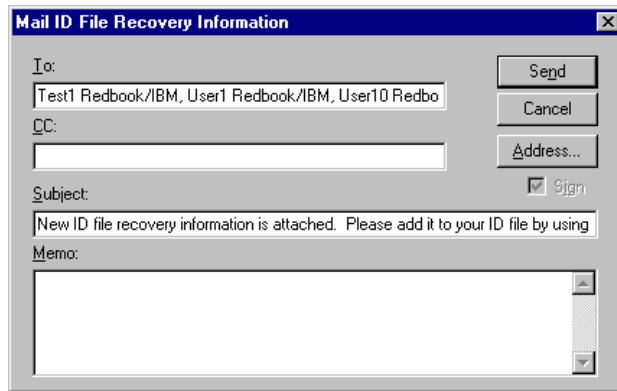
New/modified IDs will be mailed to the address below

Address... Admin1 Redbook/IBM

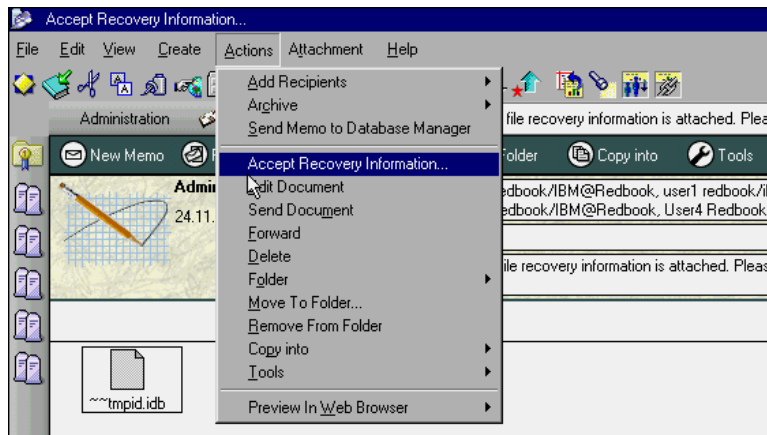
Export... OK Cancel

4. In a new environment, you can click OK and start registering new user IDs. In an upgraded environment, with existing user IDs, you need to export the recovery information and send it to your existing users.
5. When you click Export, the Mail ID File Recovery Information dialog will open.
 - Select all the users certified with the certifier you are working with.

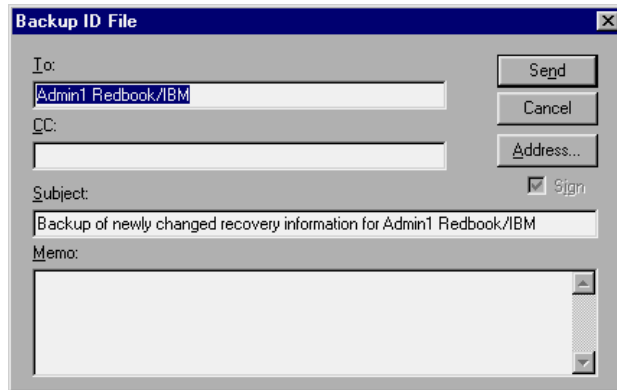
- Specify any additional information in the Memo window and optionally customize the Subject information.
- Send the mail.



6. Every user you specified in the previous step will receive the mail with the recovery information. When the mail is opened, some user interaction is needed to complete the process.
 - The user needs to choose Actions - Accept Recovery Information. The recovery information will be merged into the user ID file.



- A dialog Backup ID File will automatically open, filled with the address of the mail-in database the administrators have specified, and a subject. The user only needs to click Send.



These user steps make the procedure somewhat sensitive, because it may not be certain that the users perform the procedure. Administrators need to keep track of the backup IDs, and may have to remind users who have not sent theirs.

The copies saved in the mail-in database cannot be used as a regular ID by the administrator using their recovery passwords.

User ID recovery

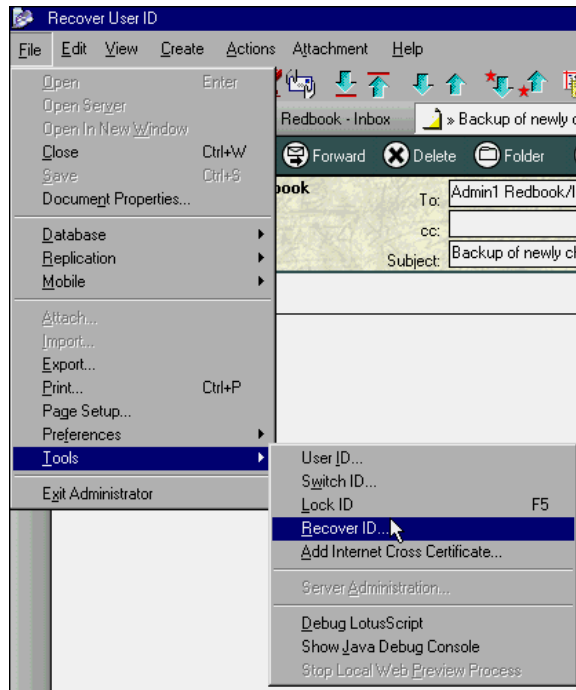
Password recovery exhibits its strength in your daily work. From our experience, it is not unlikely for users to forget their password. If that happened in an R4 environment, administrators would either have to send a backup copy with a known password, or worst case, re-register the user. The password recovery in R5 now allows you to recover an existing ID file on the client without any network connection. All the user needs is a phone.

The process of recovering a user ID on both the end user and administrator side is described in the following steps.

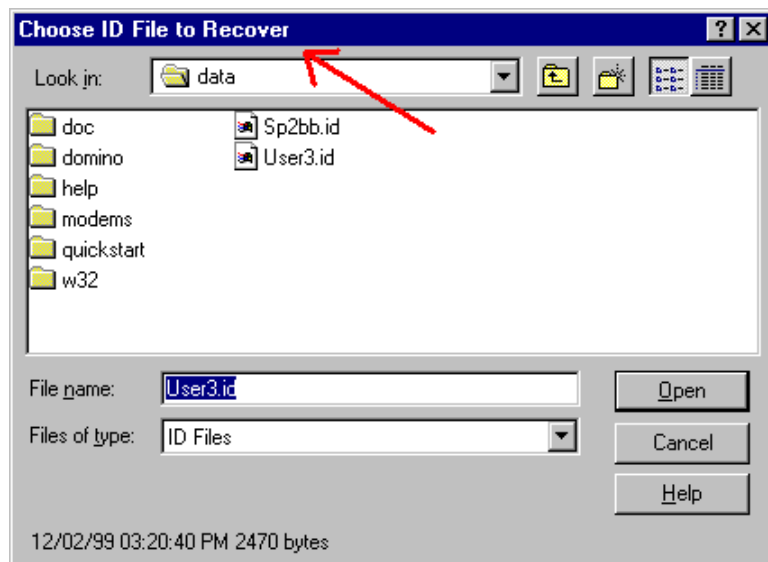
Client side

Let's assume a user forgot his or her password. There are two ways of triggering the recovery process:

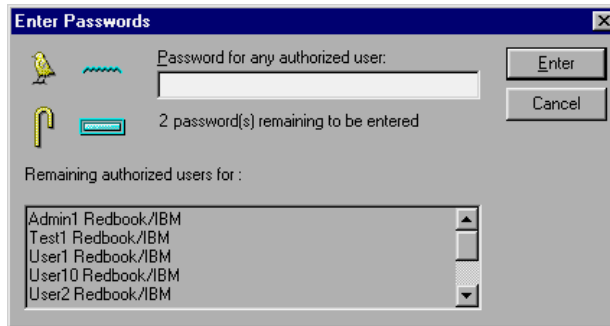
1. If the user has another ID file to start the client with, they can choose File - Tools - Recover ID.



2. Alternatively, the user can click Cancel twice in the Password prompt to get to the Choose ID File to Recover dialog.



3. After selecting the ID file for recovery, the Enter Password dialog is displayed. It includes all the administrator names that are recovery authorities and states the number of recovery passwords needed.

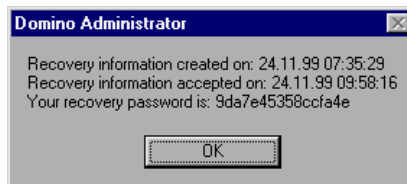


4. The user now needs to call some of those administrators to receive the recovery passwords from them.

Administrator side

The administrator would perform these steps:

1. When you as an administrator receive a call from the user asking for recovery information, open the mail-in database containing the backup ID files, and detach the user's file to a temporary directory.
2. To get the recovery password, select Tools - Certification - Extract Recovery Information on the Configuration tab of the Administrator client.
3. Choose the detached ID file; a dialog is displayed telling you the recovery password, which you then give to the end user.



User side

The user then performs these steps:

1. The user enters the password provided by the administrator and repeats the steps until the required number of passwords has been specified.
2. After the ID file is successfully recovered, the user is prompted for a new regular password. After verifying that password, the recovery process is completed.

Note The recovery passwords do not change after recovering an ID file. By keeping a record of the recovery passwords, the user would be able to recover his or her ID again, without contacting any administrator.

Updating IDs

Over time, the user IDs in your backup database will become out of date due to various factors, such as name changes or imported IDs. It is important to implement procedures that ensure up-to-date versions of the ID files are maintained, in order to provide support for users needing ID recovery services.

One way is to have an organizational rule for the users, requiring them to send a copy of their ID file whenever they make changes. Obviously, this approach depends on user action and user knowledge.

A proactive administrative way could be to send the export information on a regular basis to all of your users. If there are too many users to send to at once, you can split them into groups. This approach will reduce user interaction, but may also create an overhead of information.

These approaches are basic examples. In large environments, you will need to deal with this issue, and set up appropriate policies and procedures.

Alternate name languages

In Domino R5, you can add one alternate name to a Person document. The alternate name can reflect the native language of that user. This increases the end user's convenience by making their native language and character sets available.

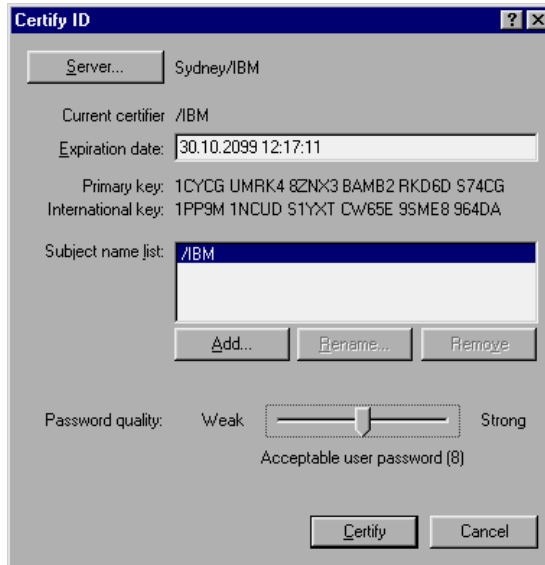
Alternate names are stored in the Person document, and can be used in ACLs, group documents and as chairperson names for Calendaring & Scheduling. Searches in the Domino Directory, such as for mail addresses, can be based on the alternate names as well. Both Notes clients and LDAP clients such as a Web browser can use alternate name lookups.

Adding alternate language information

We want to give you a brief outline of enabling the alternate languages in your existing certifier scheme. Refer to the Domino 5 Administration online help for more details on this topic.

1. To use alternate languages, you will need to renew your certificates, and add the languages desired. Select Tools - Certification - Certify on the Configuration tab of your Administrator client. Click the desired certifier twice.

2. In the Certify ID dialog box, click Add.



3. Select the desired languages you want to add to this particular certifier. Repeat this for all the languages you want to add.



4. To add the alternate name for a person, go to the Person document in the Domino Directory on the People & Group tab. Edit the document and type in the proposed alternate language information found on the Administration tab.

Note You can only add one alternate name for a person. There are no alternate names for servers.

The screenshot shows the 'PERSON: User1 Redbook/IBM' administration window. The 'Administration' tab is selected. The 'Proposed alternate common name' field is highlighted with a blue box, showing 'ArabUser1 ARedbook'. Other fields include 'Owners', 'Administrators', 'Check password', 'Required change interval', 'Grace period', 'Last change date', 'Password digest', 'Change request', 'Notes client license', 'Setup profile(s)', 'Foreign directory sync allowed', 'Network account name', and 'Sametime server'.

5. Select Tools - People - Recertify on the People & Groups tab. This will renew the certificates for the persons to whom you added the proposed alternate name information.

The screenshot shows the 'Renew Certificates In Selected Entries' dialog box. The 'Renew Certificates issued by:' field is set to '/IBM'. The 'New certificate expiration date:' field shows '23.11.2001 12:53:52'. The 'Only renew certificates that will expire before:' field is empty. The 'Edit or inspect each entry before submitting request' checkbox is checked.

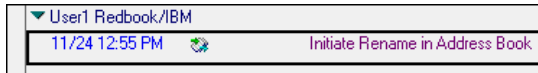
6. You can go through each person's document again and make adjustments, if so desired. If you do not want to edit the Person documents, deselect the check box "Edit or inspect each entry before submitting a request."

The screenshot shows the 'Recertify User' dialog box. The 'Primary Name Information' section shows 'Common Name' as 'User1 Redbook' and 'Qualifying Org. Unit' as empty. The 'New Alternate Name Information' section shows 'Common Name' as 'ArabUser1 ARedbook', 'Qualifying Org. Unit' as empty (optional), and 'New Language' as 'Arabic'. The 'OK', 'Skip', and 'Cancel Remaining Entries' buttons are at the bottom.

A result dialog is displayed, telling you the status of recertification.



7. For each person, an Administration Request document is added to the Administration Request database (admin4.nsf).



The alternate name is included in the Person document and can be accessed for name searches.

A screenshot of the "Edit Person" form. The title bar says "Edit Person". The main header is "PERSON: Test3 Redbook/IBM" with a sub-header "Test3 Redbook/IBM @ Redbook". Below the header is a tabbed interface with tabs: "Basics", "Mail", "Work/Home", "Other", "Miscellaneous", "Certificates", and "Administration". The "Basics" tab is selected. The form contains the following fields: "First name: Test3", "Middle initial:", "Last name: Redbook", "User name: Test3 Redbook/IBM", "Alternate name: ArabTest2/ARedbook/ARAB_IBM", "Short name: T3Redbook", "Personal title:", "Generational qualifier:", and "Internet password:". The "Alternate name" field is highlighted with a red box.

New registration

For newly registered users, using the certifier with alternate name languages, the language information can be specified in the registration interface.

Register Person -- Test3 Redbook

☒ Advanced

Basics

Mail

ID Info

Groups

Setup profile: Basic

Unique org unit:

Location:

Local administrator:

Comment:

Choose an alternate name language to enable alternate name and org unit

Alternate name language: Arabic

Alternate name: ArabTest2

Alternate org unit: ARedbook

☐ Add this person to windows NT

Windows NT user name:

Add person to Windows NT group:

LDAP searches

If you have clients that perform LDAP searches on your Domino Directory and you want them to be able to search for alternate names as well, you need to create Alternate Language Information documents for the Person documents. Use the following steps to do this.

1. Make sure that creating Alternate Language Information documents is allowed in the Domino Directory Profile.

Save and Close

DOMINO DIRECTORY PROFILE

Basics

Basics

Domain defined by this Domino Directory: Redbook

Directory Catalog database name for domain: dircat.nsf

Sort all new groups by default: Yes

Use more secure Internet Passwords: No

Allow the creation of Alternate Language Information documents: Yes

List of administrators who are allowed to create Cross Domain Configuration documents in the Administration Process:

Requests database:

2. Open the desired Person document and select Actions - Add Alternate Language Information.

Save and Close

ALTERNATE LANGUAGE INFORMATION

Basics | Work/Home | Administration

Basics

Language: Arabic

User name: Test3 Redbook/IBM

Common name: ArabTest2

First name:

Middle initial:

Last name:

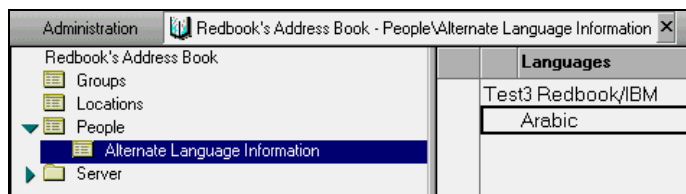
Personal title:

Generational qualifier:

Link to Person document:

3. Enter the appropriate information in the document and save it.

Note The Alternate Language Information document can be viewed in the People view of the Domino Directory. It is *not* displayed in the Administrator client.



Summary

The R5 Administrator client offers more convenience when registering new users. By using the Registration Queue database, registration information can be stored and accessed again for later adjustments.

Password recovery provides a new way to recover user IDs when passwords are lost, without the need to distribute the ID files over networks.

In international companies, the new feature of alternate languages can enhance usability by enabling users to use their native language and character sets.

Chapter 22

Monitoring

This chapter discusses the upgrade of existing R4 monitoring functionality. Also, the enhancements in R5 and their implementation are addressed. But first, we start out with a quick look at Administration Preferences concerning monitoring.

The main topics covered are:

- Administration Preferences — Monitoring
- Statistics & Events
- Mail tracking
- Summary

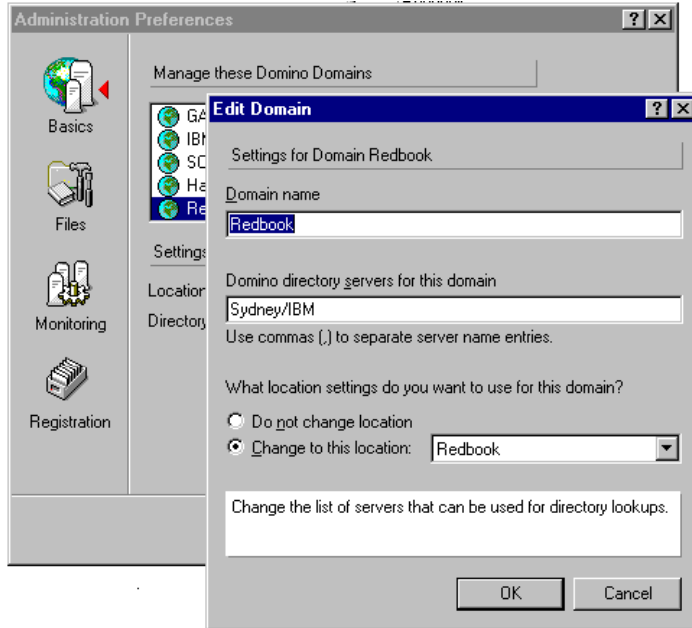
Administration Preferences - Monitoring

To monitor a Domino domain from your Administrator client, a few settings in the Administration Preferences need to be configured.

You can access the Administration Preferences through the menu choices File – Preferences – Administration Preferences.

Basics

To add the domains you administer, go to the Basics section of Administration Preferences. You can add the desired domains with their directory server and, optionally, specify a Location document that will be used when accessing that domain. When you tie a domain to a certain Location document, you can additionally configure a user ID file and mail file in that Location document to further automate the switch between domains.

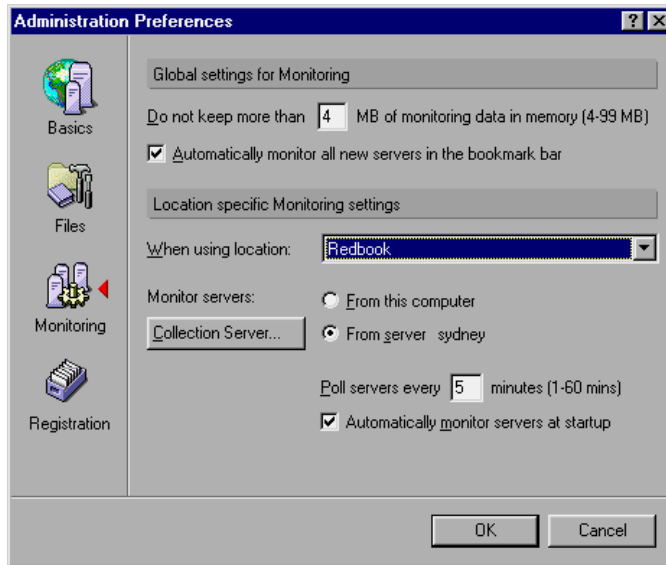


All the configured domains will appear as a bookmark on your bookmark bar in the Administrator client.

Monitoring

In the Monitoring section, you can adjust some global and location-specific settings. It is, however, recommended that you stay with the default values since they are known to work well.

To keep load off your Administrator client, you might want to consider using the Collect task on your server to collect statistics and monitoring information.



For a detailed look at the individual settings in the Administration Preferences, refer to the Domino Administration online help. There is also a very good article on Notes.Net, called “Server Monitoring in R5,” which covers monitoring with the Administration client. Find it on the Web at

www.notes.net/today.nsf

Statistics and events

Basically, Domino servers have two different ways of providing system information:

- Events

Events are triggered by certain server activities and range from normal actions, for example, a replication, up to severe error messages.

- Statistics

Statistics provide data about the status of a Domino system and can themselves trigger events. The main distinction between events and statistics is the timing. Statistics are not triggered, but instead are generated on a periodic basis.

The monitoring functionality in Domino R5 consists of the following components:

- Statistics & Events database (events4.nsf)

The configuration of monitors for databases, statistic thresholds, and events is done in this database. An action can be assigned to each monitor depending on criteria such as severity level or event type.

- Statistic Report mail-in database (statrep.nsf)

This mail-in database stores the observed events and statistic reports.

- Event server task

This task needs to run on every server that is monitored. It dispatches the events.

- Collect server task

This task is needed to collect statistics from multiple servers. It replaces the Report task familiar from Domino R4.

- Ispy server task

This task generates server, mail, and TCP/IP probes. It also creates events for probes that fail.

For a comprehensive look at how to set up certain monitors or probes, refer to Chapter 8, “Managing Domino R5,” in the IBM redbook *Netfinity and Domino R5.0 Integration*, IBM form number SG24-5313, or Chapter 36, “Monitoring the Domino System,” in the Lotus product documentation *Administering the Domino System, Volume 2*, part number CT6T8NA.

Transitioning issues

The following sections cover several transitioning issues.

Server tasks - Report and Collect

The statistical tasks Collect and Report have been consolidated in R5. The Report task functionality is integrated in the Collect task and the base server code. This means some improvement in server performance because, previously, the Report task had to individually run on every server to gather statistical data. In R5, the Collect task can collect server statistics and generate reports for remote servers. Only one server needs to be dedicated to collecting statistics. This should preferably be a server with low or no user activity, such as an administration or hub server.

To go even further, you can eliminate the Collector from the server and set up a dedicated Administration client that performs the statistics collection. The Administrator client can collect information from R4 and R5 servers on

the fly; only the event task is needed on every server. However, server-based statistic collection is more flexible and can be scheduled.

The Collect task is able to collect statistics from R4 servers running the events task. The Report task is not needed, but can also be running on your R4 server without interfering with the Collector. This enables a possible transitioning scenario where your already upgraded R5 server can be enhanced by the Collector task and can collect statistics from the R4 servers. The Report tasks on the R4 servers can in turn be eliminated step by step.

The second transitioning scenario would use the Collector only on the R5 servers. The R4 servers use their own Report task and logging setup (locally or on a remote server). Statistics of both server releases can be combined into one Statistics Report database (statrep.nsf), which has replicas on all needed servers.

Statistics & Events database

The design and functionality of the Statistics & Events database (events4.nsf) in R5 changed significantly. The functionality was enhanced by new features like probes, new actions for notifications and new event types (see the table later in this chapter for details). Design features like tabbed tables and images are introduced. We recommend an R5 client for administration and configuration of the Statistics & Events database.

The R4.x statistic reports for each server are now statistic collections in R5. The old Servers to Monitor view and form was removed, and the documents are now displayed in any view of the new R5 template. If you have the R5 design on an R4 server, you can now perform configurations on the Server to Monitor documents.

Limited design distribution

In cases where the monitoring for all spokes servers cannot be done with the Collector task on a R5 hub server, distribution of the R5 design should be limited. The design replication for incoming replication must be disabled for the databases events4.nsf and statrep.nsf on all R4 spokes that will use the R4 monitoring. (See Chapter 6, “Rollout considerations for upgrading to R5,” for an example of limiting design replication.)

However, the R4 servers can perform any R4-configured monitoring with the R5 design of the databases events4.nsf and statrep.nsf. Monitoring will still work when the R5 design is replicated throughout your environment onto the R4 servers. The drawback lies in the limited configuration capabilities due to the missing form.

Note The templates for the Statistics & Events database have the same replica ID in R4 and R5. Even when you limit the design replication of the database, the template replication and the design task might still replace the old design. Disable template replication.

The R4 Activity Reports no longer exist and cannot be configured in the R5 databases.

The right information

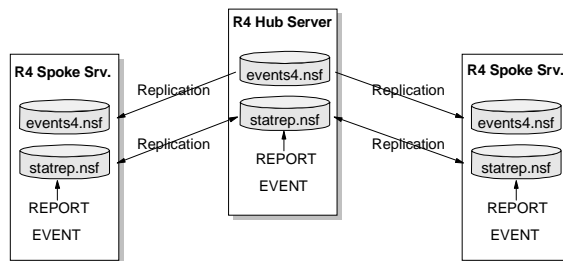
Monitoring provides important information to the administrators, but the information has to be easily accessible and comprehensible, too. The Statistics & Monitoring feature used in every possible way will produce a huge amount of information, where the important facts cannot readily be spotted.

Planning should be done beforehand, at the time of implementing monitoring. We found it very helpful to start small and examine the results. As experience grows, fine-tuning of monitoring can be done and thresholds can be customized.

When you upgrade your monitoring from R4 to R5, you already have a set of parameters in place, which can be adapted to the R5 environment. Still, the enhancements such as probing or file monitoring need careful planning and consideration of what results you need, what the effects on the network are, and which new services you want to use.

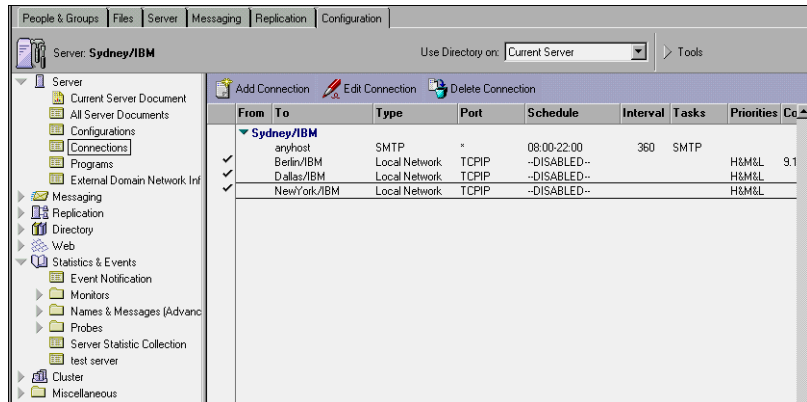
Transition monitoring step-by-step

We now want to describe, step-by-step, an upgrade of the monitoring functionality from R4 to R5. Our environment is based on R4.6.5a and 5.0.1b server code running on NT4.0 servers with ServicePack 5 installed. Clearly, we cannot cover every possible setup for monitoring. Find our sample scenario in the following figure and the upgrade result at the end of the checklist:

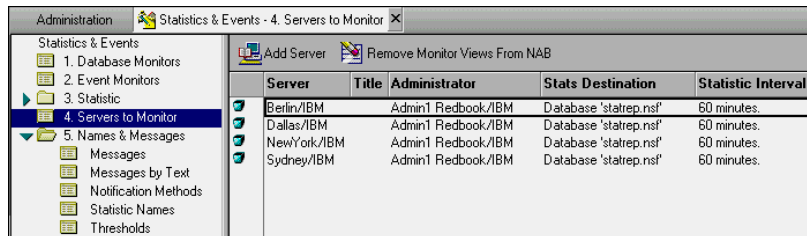


We went through the following steps for upgrading:

1. All the Connection documents between the hub server that was upgraded and its R4 spokes were disabled for security reasons.

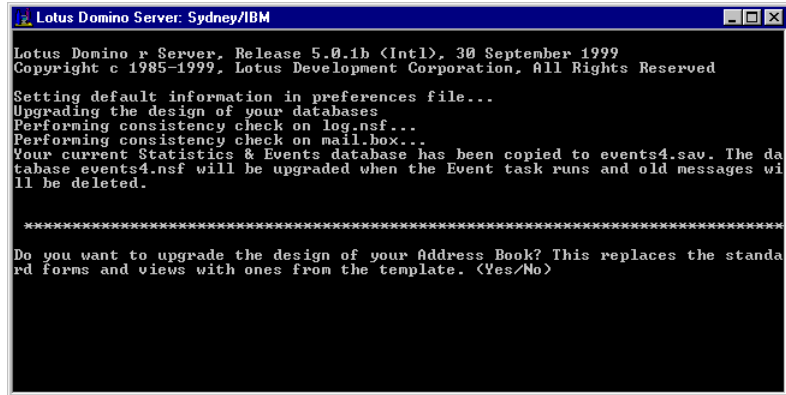


2. The “Servers To Monitor” documents in the Statistics & Events database events4.nsf were removed from the upgrading server.



3. The preparation and installation of the R5 code was initiated. Refer to Chapter 7, “Domino R5 server upgrade,” for more details.

During the installation process, the database events4.nsf and statrep.nsf were upgraded automatically. The following message is displayed on the server console.

A screenshot of a Lotus Domino Server console window titled "Lotus Domino Server: Sydney/IBM". The window has a blue title bar and standard window controls. The text inside is white on a black background. It shows the following messages:

```
Lotus Domino r Server, Release 5.0.1b (Intl), 30 September 1999
Copyright c 1985-1999, Lotus Development Corporation, All Rights Reserved

Setting default information in preferences file...
Upgrading the design of your databases
Performing consistency check on log.nsf...
Performing consistency check on mail.box...
Your current Statistics & Events database has been copied to events4.sav. The da
tabase events4.nsf will be upgraded when the Event task runs and old messages wi
ll be deleted.

*****

Do you want to upgrade the design of your Address Book? This replaces the standa
rd forms and views with ones from the template. <Yes/No>
```

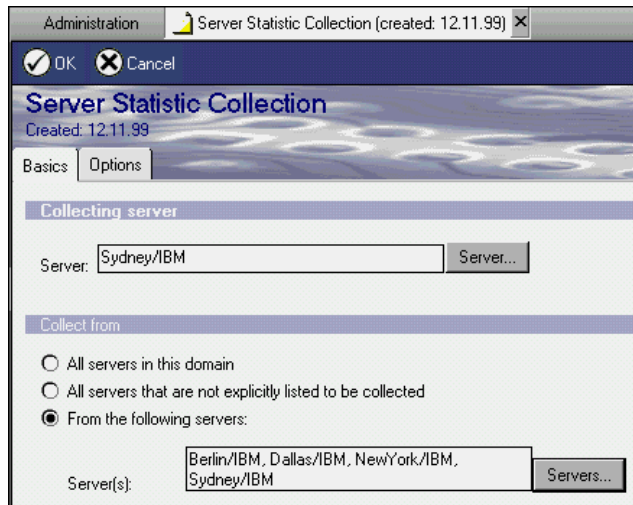
Note Not all the documents were deleted from the events4.nsf, only the R4 messages for statistics and events. The configuration documents will remain.

The report task was automatically removed from the NOTES.INI file and will not start on server start.

4. The Statistic Collector task was loaded with the command `load collect`

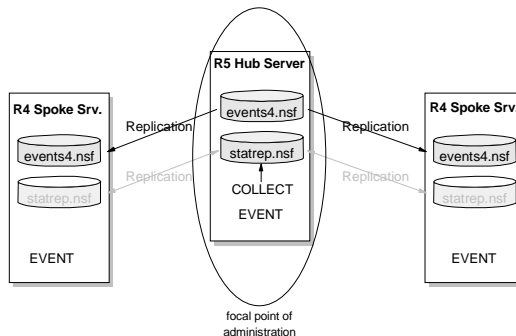
The Collect task will create a Server Statistic Collection document for this server, with the default interval settings of 120 minutes for reporting and 30 minutes for alarms.

5. The Server Statistic Collection document was edited to include collection for the remaining R4 spokes servers.



Note When configuring more than one Server Statistic Collection document, we experienced the problem that only the first one was processed by the Collector task.

6. The Connection documents were enabled again.
7. When replication of the Statistics & Events database between the R5 hub and its R4 spokes was completed, the Report task stopped automatically on the spoke server because the Server to Monitor document was missing. If this is not done automatically, stop the Report task manually with the `tell report stop` command. Furthermore, the Report task had to manually be removed from the `NOTES.INI` `servertasks` line of the R4 spokes.
8. Optional: The Statistic Reports database (`statrep.nsf`) can be removed from the spokes servers because technically it is not necessary any more.



Defining your own statistics

If you take a look at the view Default Statistic Thresholds under Names & Messages (Advanced) in the Statistics & Events database (events4.nsf) and compare that to the document in the view Statistic Names, you will recognize a huge difference in the number of documents (87 to 795). The predefined thresholds are only a small part of the available statistic values from the Domino server. You can increase the items that can be monitored by defining thresholds for the desired statistic names.

Depending on the services you run on your servers, you can add instructions for services such as Web, POP3, or NNTP to be monitored. Because these additional monitoring features are very advanced, you should be quite experienced before defining your own thresholds for new statistics.

Here is an example of defining a monitor for the cluster replication queue. This can be very helpful to determine how quickly your cluster replication actually performs, and if you need to take actions to improve cluster replication.

1. Open the document Replica.Cluster.SecondsOnQueue.Avg under Statistic names for editing.
2. On the Advanced tab, select Yes for “Useful for thresholds?”
3. In the section Default threshold values, specify the following:

Threshold operator:	Greater than
Threshold value:	15 (Number of seconds on the queue)
Event severity:	Warning (high)
Statistic to compare against:	
Suggested response:	Cluster replication needs observance!
Useful in setup:	No

Note The last setting, “Useful in setup:” can be set to Yes in the template database, if you want to have this statistic monitored by default when creating a new events4.nsf from the template.

- 4. Click OK to save and close the document.
- 5. Create a Statistic Monitor to monitor your new statistic. In the monitor document, you can further adjust the threshold value and the severity level.

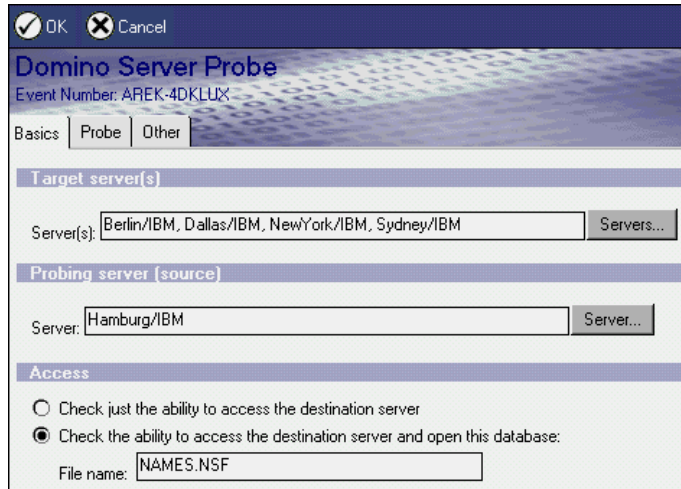
- 6. Additionally, set up an Event Notification if this is not already in place for replication events with the specified severity.

Availability probing

Domino R5 comes with a probing functionality for validating connections or services on a server, very similar to the ping command, known from TCP/IP. Probing can be done in three different ways:

1. Domino servers

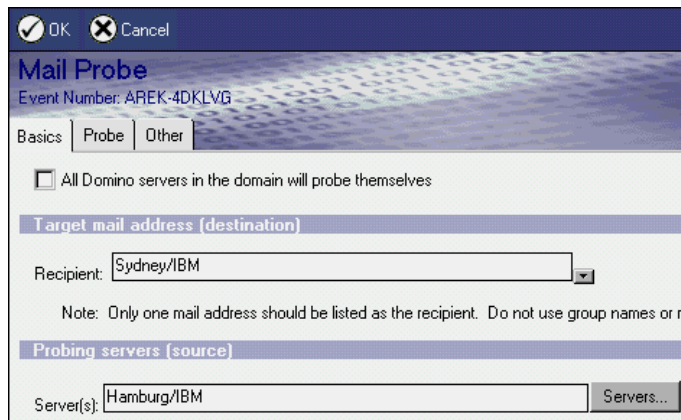
Administrators can verify the response time of Domino servers in general, or check if a specified database opens in a certain amount of time.



The screenshot shows the 'Domino Server Probe' dialog box. It has a title bar with 'OK' and 'Cancel' buttons. Below the title bar, the title 'Domino Server Probe' is displayed, followed by 'Event Number: AREK-4DKLUX'. There are three tabs: 'Basics', 'Probe', and 'Other', with 'Probe' being the active tab. The 'Target server(s)' section has a text field containing 'Berlin/IBM, Dallas/IBM, NewYork/IBM, Sydney/IBM' and a 'Servers...' button. The 'Probing server (source)' section has a text field containing 'Hamburg/IBM' and a 'Server...' button. The 'Access' section has two radio buttons: 'Check just the ability to access the destination server' (unselected) and 'Check the ability to access the destination server and open this database:' (selected). Below the radio buttons is a text field for 'File name:' containing 'NAMES.NSF'.

2. Mail

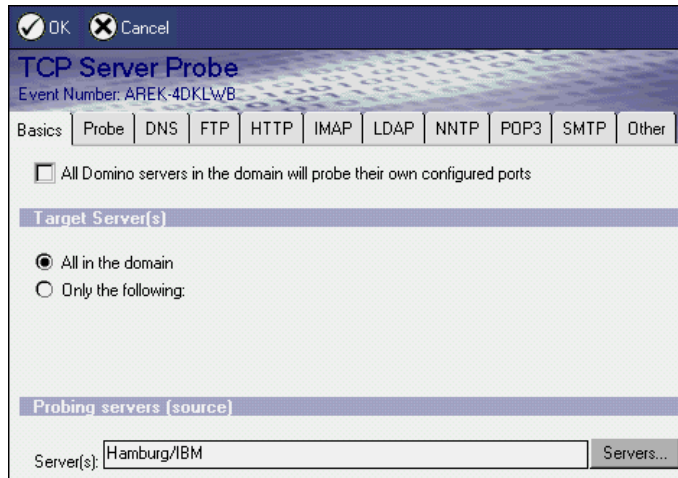
Mail Probe runs against the Router task of a specific Domino server in a given interval. Only a single server can be configured in one document.



The screenshot shows the 'Mail Probe' dialog box. It has a title bar with 'OK' and 'Cancel' buttons. Below the title bar, the title 'Mail Probe' is displayed, followed by 'Event Number: AREK-4DKLVG'. There are three tabs: 'Basics', 'Probe', and 'Other', with 'Probe' being the active tab. Below the tabs is a checkbox labeled 'All Domino servers in the domain will probe themselves', which is currently unchecked. The 'Target mail address (destination)' section has a text field for 'Recipient:' containing 'Sydney/IBM' and a dropdown arrow. Below this is a note: 'Note: Only one mail address should be listed as the recipient. Do not use group names or m...'. The 'Probing servers (source)' section has a text field for 'Server(s):' containing 'Hamburg/IBM' and a 'Servers...' button.

3. TCP servers

TCP/IP probes can be used to check Web services such as DNS, FTP, HTTP, IMAP, LDAP, NNTP, POP3 and SMTP.



Probing is implemented through the Java-based server task ISpy, which issues the probes. You can centralize probing on one or more servers that initiate the probes against the other servers. Only the initiating servers need to run the ISpy task. However, every server can also probe itself. The actual setup depends on the connectivity you want to examine and also on network traffic considerations.

The ISpy task running on an R5 server can also probe services on R4 servers. In our test environment, we used version R4.6.5a. TCP server probes can be issued against *any host* (other than a Domino server) running a TCP/IP service. Specify the IP address or DNS name as the server name.

The ISpy task is not started by default nor is it automatically started when a probe document is saved. If you configure probes, you need to load the task manually using one of the following methods:

- In the Administrator client on the server - Status tab
 1. Click Start in the Tools pane.
 2. Select Ispy in the pop-up window.
 3. Click Start Task.

4. Click Done.



- Alternatively, issue the server command `load runjava ISpy` (ISpy needs to be spelled exactly as shown since it is case sensitive).

Note Probes will create an additional amount of network traffic. However, this is limited because probes can only run once a minute.

Comparison of monitoring features: R4 and R5

The following table compares monitoring features in R4 and R5:

<i>Description</i>	<i>R4</i>	<i>R5</i>
Configuration database	Statistics & Events (event4.nsf)	Statistics & Events (event4.nsf), major design changes, tabbed tables wizards
Log database	Statistics Reports (statrep.nsf)	Statistics Reports (statrep.nsf), minor structure changes
Event dispatcher	Event task	Event task
Statistic tasks	Report task on every server Collect	— Collect enhanced by the Report functions

continued

<i>Description</i>	<i>R4</i>	<i>R5</i>
Monitors	Statistic	Statistic
	Event	Event
	Replication	Replication
	ACL changes	ACL
	—	File – Unused Space, User Inactivity
Probes	—	Domino server
	—	Mail
	—	TCP Server – DNS, FTP, HTTP, IMAP, LDAP, NNTP, POP3, SMTP
Reports	Statistic reports	Server Statistic Collection
	Analyze statistics	—
Event notification methods	Mail	Mail
	Log to a database	Log to a database
	Relay to other server	Relay on other server
	SNMP Trap Log to NT Event Viewer	Log to NT Event Viewer
	—	Pager
	—	Run a Program
	—	Log to UNIX System Log
	—	SNMP Trap
	—	Broadcast
	Comm/Net	Comm/Net
Event types	Security	Security
	Mail	Mail
	Replication	Replication
	Resource	Resource
	Misc	Misc
	Server	Server
	Statistic	Statistic

continued

<i>Description</i>	<i>R4</i>	<i>R5</i>
	Update	Update
	—	Database
	—	Network
	—	Compiler
	—	Router
	—	Agent
	—	Client
	—	AddIn
	—	AdminP
	—	Web (HTTP/HTTPS)
	—	News (NNTP)
	—	FTP
	—	Directory (LDAP)

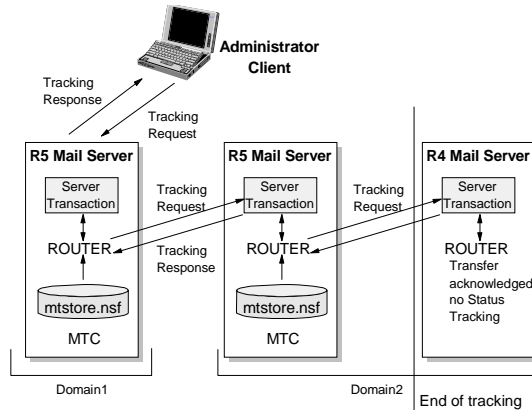
Mail tracking

Mail tracking assists administrators to determine the location of a mail message. See also Chapter 3, “Ease of administration,” for an overview of Mail tracking. Tracking can be done for the following information:

- Mail
- Responses
- Meeting invitations
- To do threads
- Application-generated mail (for example, workflows)

Mail tracking can only be performed on R5 servers running the necessary MTC task; R4 servers are not supported. Delivery to an R4 server can be verified, but its status cannot be tracked on non-R5 servers. The same applies to R5 servers that do not run the MTC task.

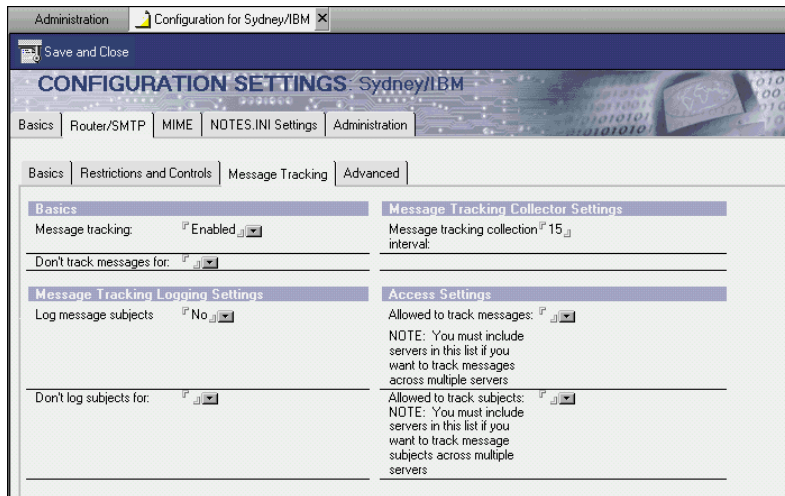
See the following figure for an overview of a mail tracking infrastructure.



Setup

This section presents a description of the setup and the procedure for using mail tracking and its components.

1. Automatic mail tracking must be enabled in a Server Configuration document. Open a configuration document. You can use that configuration document for a group of R5 servers that will run mail tracking.
2. Go to the Router/SMTP - Message Tracking tab and select Enabled in the "Message tracking:" field.

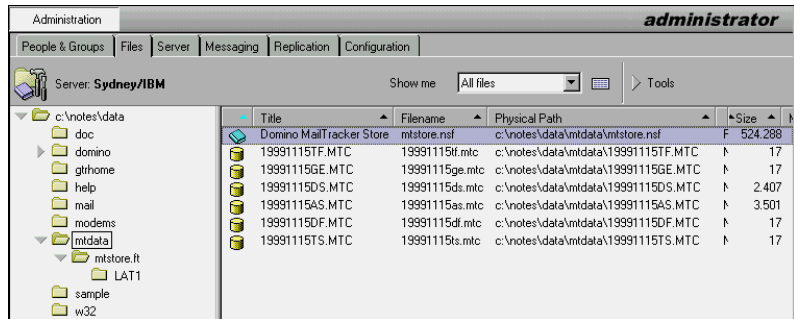


For manual load of the MTC task, specify `load MTC` at the server console of each server you want to monitor.

3. The MTC task is started and creates the Domino MailTracker Store database (mtstore.nsf) in the subdirectory \mtdata. The mtstore.nsf is *not* replicated between the servers; every server has its own copy. Also, six files are created with the extension MTC. The router stores this information in those files, before they get written to the mtstore.nsf by the MTC task in the configured interval.

This can be manually forced with the command `tell MTC process`.

Tip In earlier releases of R5, the subdirectory \mtdata was not created automatically. If that is the case, stop the MTC task and create the \mtdata directory manually. After that, the task can be loaded and runs successfully. However, with Release R5.0.1b, this did not occur.

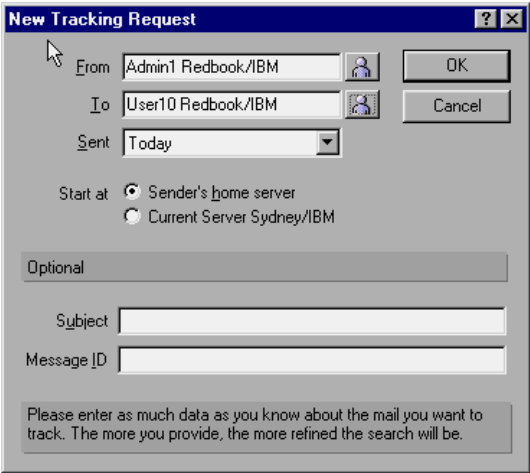


4. Once the MTC task is running on the server, the messages handled by the Router are tracked. You can access and view this information in the Administrator client on the Messaging - Mail Tracking tab after the first collection interval of the MTC task.

To retrieve the information:

- a. Click New Tracking Request.

- b. In the pop-up window New Tracking Request, enter the appropriate information, for example, the sender and receiver address and the date.

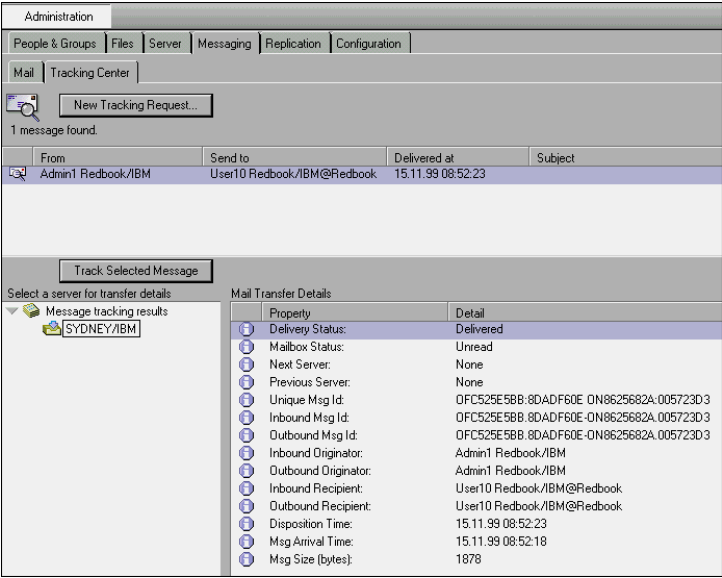


The 'New Tracking Request' dialog box contains the following fields and options:

- From:** Admin1 Redbook/IBM
- To:** User10 Redbook/IBM
- Sent:** Today
- Start at:** ☒ Sender's home server, ☐ Current Server Sydney/IBM
- Optional:** (Section header)
- Subject:** (Empty text box)
- Message ID:** (Empty text box)
- Footer:** Please enter as much data as you know about the mail you want to track. The more you provide, the more refined the search will be.

- c. Click OK.

The information found will be displayed in the upper part of the screen. To view details about a specific message, double-click the message. The details will be shown in the lower part of the screen.



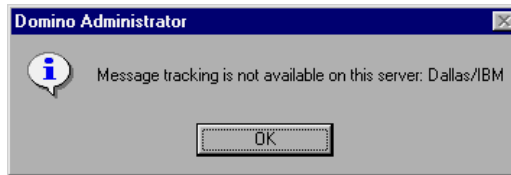
The screenshot shows the 'Mail Tracking Center' interface with the following components:

- Administration:** People & Groups, Files, Server, Messaging, Replication, Configuration
- Mail:** Tracking Center
- Buttons:** New Tracking Request...
- Message List:** 1 message found.

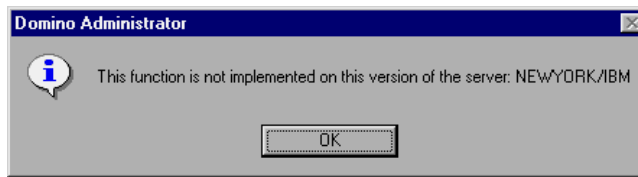
From	Send to	Delivered at	Subject
Admin1 Redbook/IBM	User10 Redbook/IBM@Redbook	15.11.99 08:52:23	
- Track Selected Message:** Select a server for transfer details (SYDNEY/IBM)
- Mail Transfer Details:**

Property	Detail
Delivery Status:	Delivered
Mailbox Status:	Unread
Next Server:	None
Previous Server:	None
Unique Msg Id:	OFC525E5BB-8DADF60E-0N8625682A-005723D3
Inbound Msg Id:	OFC525E5BB-8DADF60E-0N8625682A-005723D3
Outbound Msg Id:	OFC525E5BB-8DADF60E-0N8625682A-005723D3
Inbound Originator:	Admin1 Redbook/IBM
Outbound Originator:	Admin1 Redbook/IBM
Inbound Recipient:	User10 Redbook/IBM@Redbook
Outbound Recipient:	User10 Redbook/IBM@Redbook
Disposition Time:	15.11.99 08:52:23
Msg Arrival Time:	15.11.99 08:52:18
Msg Size (bytes):	1878

You will see the following message if you try to track a message on an R5 server not running the MTC task:



The following message is displayed when tracking the message on an R4.x server:



Note End users can also take advantage of message tracking. They can track their own messages by choosing Actions - Tools - Send Tracking Request. Refer to Chapter 19, "Using new R5 features," for more information.

Domino MailTracker Store

The information in the Domino MailTracker Store database (mtstore.nsf) is not intended to be read. It is accessed and displayed by the Administrator client. Information is very compressed to avoid using unnecessary disk space.

Downloaded from <http://ajphaphysiol.physiology.org/> by guest on September 11, 2012

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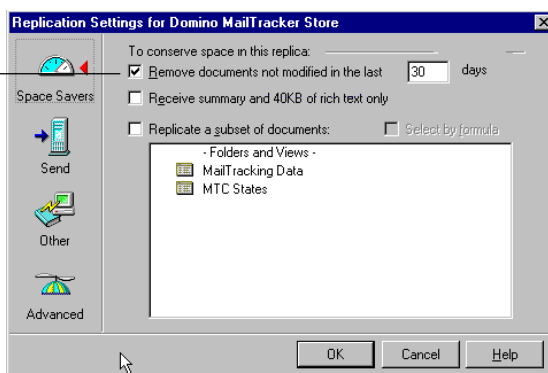
Server impact

Mail tracking will unquestionably affect your server. Try to validate your service level with mail and server probes if you are not sure about the impact on your particular environment. Compare your probing results with and without mail tracking running.

The Mail Tracking Store database will get larger as information is collected from the router. Depending on your mail traffic, storage space may become a concern. A full-text index is automatically created. The .MTC files are created on a daily basis.

You can use database replication settings to control how many days' worth of information the database retains. By default, the setting is selected, and documents will be purged after 30 days. Fine-tune this setting to accommodate your system needs. Realize though, that the tracking as well as the Reports rely on the information stored in the Mail Tracking Store. The shorter the purge interval, the less information can be retrieved.

Select option and specify number of days documents should be kept.



Information about several messages can be condensed into a single document of the Mail Tracking Store database. An entry in a document represents a Router activity like delivering a message to a person or transferring it to another server. The number of entries depends on the complexity of your infrastructure.

To give you a rough idea of the size, we experienced an entry size of approximately 200 bytes for a locally delivered message to one person plus the general overhead of the document. The size of a document with one entry was roughly 380 bytes in our tests with a R5.0.1b Domino server on NT. We designed the following view to additionally show the document size:

Administration Domino MailTracker Store - MailTracking Data with Size				
Domino MailTracker Store	Earliest Arrival Time	Latest Arrival Time	Num Entries	Size (bytes)
MailTracking Data	16.11.99 08:58:01	16.11.99 09:43:37	25	4251
MailTracking Data with Size	15.11.99 23:10:09	15.11.99 23:10:09	1	383
MTC States	15.11.99 10:45:59	15.11.99 10:46:34	4	1222
	15.11.99 10:38:08	15.11.99 10:38:08	2	527
	15.11.99 10:36:15	15.11.99 10:36:18	3	852
	15.11.99 10:33:30	15.11.99 10:33:32	2	703
	15.11.99 10:31:01	15.11.99 10:31:01	1	381
	15.11.99 10:26:53	15.11.99 10:27:40	4	1116
	15.11.99 10:22:59	15.11.99 10:23:19	35	5908
	15.11.99 10:21:22	15.11.99 10:21:22	1	381
	15.11.99 10:18:05	15.11.99 10:18:05	1	383
	15.11.99 08:51:44	15.11.99 08:52:18	12	2033
			91	18140

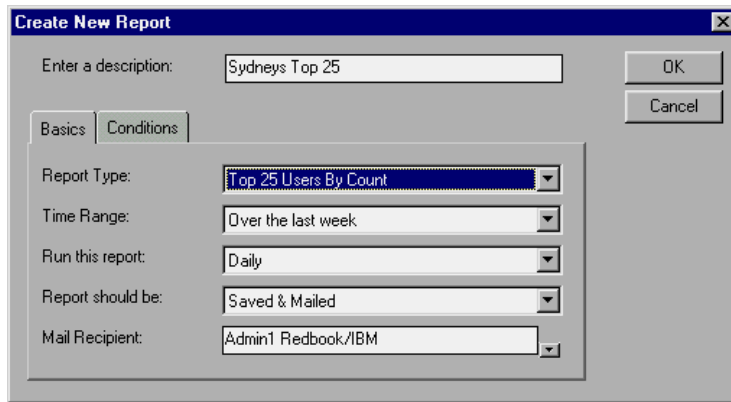
Reports

Based on the results of mail tracking stored in the mtstore.nsf, reports can be configured. Reports evaluate router activity based on a certain topic, such as Top 25 Users By Count. They are configured in the Reports database (reports.nsf) and are based on a single server.

Generally, the Reports database is created automatically during server installation. If that is not the case, create the database based on the Reports (R5) template, which is an advanced template.

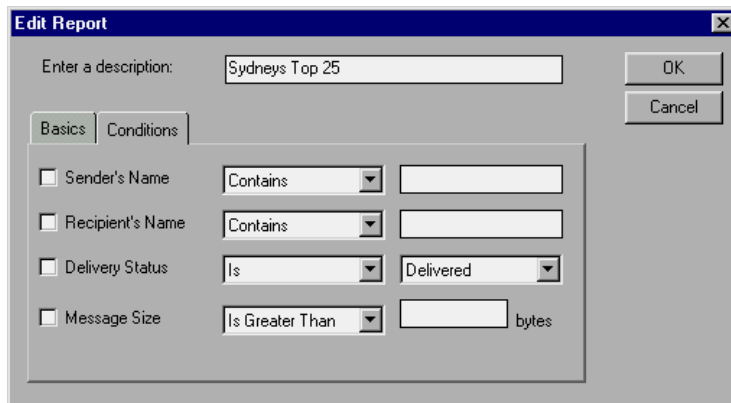
The Reports database can be accessed through the Administrator client on the Messaging - Mail tab.

When you create new reports, there are eleven predefined report types available, for example Top 25 Users By Count or Message Summary. A time range can be configured, as well as a repeating interval. Apart from saving the reports into the database, they can also be mailed.



The 'Create New Report' dialog box features a title bar with a close button. It contains a text field for 'Enter a description:' with the value 'Sydney's Top 25'. Below this are two tabs: 'Basics' (selected) and 'Conditions'. Under the 'Basics' tab, there are five rows of settings, each with a label and a dropdown menu: 'Report Type:' set to 'Top 25 Users By Count', 'Time Range:' set to 'Over the last week', 'Run this report:' set to 'Daily', 'Report should be:' set to 'Saved & Mailed', and 'Mail Recipient:' set to 'Admin1 Redbook/IBM'. 'OK' and 'Cancel' buttons are located in the top right corner.

To further configure and customize a report, there are several settings on the Conditions tab that can be qualified.



The 'Edit Report' dialog box has a title bar with a close button. It includes a text field for 'Enter a description:' with the value 'Sydney's Top 25'. Below the text field are two tabs: 'Basics' and 'Conditions' (selected). The 'Conditions' tab displays four filter criteria, each with a checkbox, a dropdown menu, and a text field: 'Sender's Name' (checkbox unchecked, dropdown 'Contains', empty text field), 'Recipient's Name' (checkbox unchecked, dropdown 'Contains', empty text field), 'Delivery Status' (checkbox unchecked, dropdown 'Is', dropdown 'Delivered'), and 'Message Size' (checkbox unchecked, dropdown 'Is Greater Than', empty text field followed by 'bytes'). 'OK' and 'Cancel' buttons are in the top right corner.

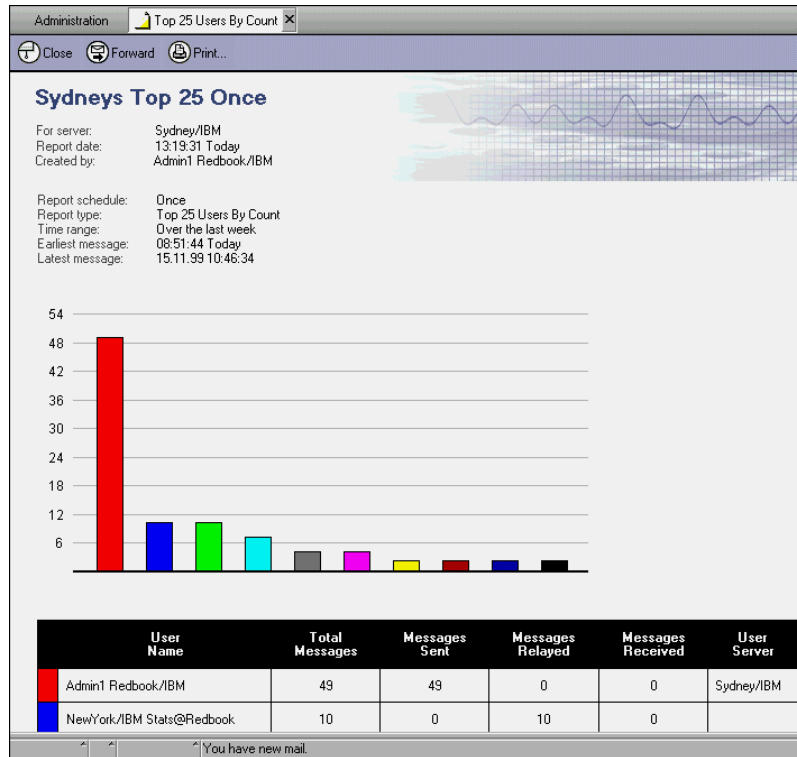
To run the scheduled reports, the appropriate agents need to be activated in the database. Choose View - Agents to see the agents and activate all of them.

Name/Comment	Alias	Trigger	Owner	Last Modified	Notes	Web
<input checked="" type="checkbox"/> Daily Report Agent	aaDailyReportAgent	Scheduled	Shared	24.06.99 12:39:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Monthly Report Agent	aaMonthlyReportAg	Scheduled	Shared	24.06.99 12:39:31	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
WebRunReport	aaWebRunReport	Menu	Shared	24.06.99 12:39:33	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Weekly Report Agent	aaWeeklyReportAg	Scheduled	Shared	24.06.99 12:39:31	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> (Housecleaning)	aaHousecleaning	Scheduled	Shared	24.06.99 12:39:35	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(One Time Report Agent)	aaOneTimeReportA	Hidden	Shared	24.06.99 12:39:29	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(Web One Time Report Agent)	aaWebOneTimeRep	Hidden	Shared	24.06.99 12:39:35	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Additionally, you want to make sure that you as an administrator have the required rights to run unrestricted agents on the server. Open the server document, and check the agent manager section on the Security tab. Administrators need to be listed in the “Run unrestricted LotusScript/Java agents:” field.

Agent Restrictions	Who can -
Run personal agents:	<input type="checkbox"/>
Run restricted LotusScript/Java agents:	<input checked="" type="checkbox"/>
Run unrestricted LotusScript/Java agents:	<input checked="" type="checkbox"/>

An example report could look like this:



Summary

We discussed transitioning the monitoring function from R4 to R5. Many of the new enhancements such as the Collect task and probing can be used for both server releases, which guarantees a smooth upgrade and supports coexistence.

The Mail Tracking and Reports features, new to R5, cannot be performed on non-R5 servers. Keeping the coexistence period as short as possible provides for a fast enterprise-wide utilization of those features. Keep in mind, though, that it is likely to put extra load on your Domino servers and hardware.

Appendix A

Compact switches for Domino R5

The following information is provided from Lotus Knowledge Base document #172454.

The tables describe the options you can use with the Compact server task. The first column lists the options as they appear when you run Compact using the Task - Start tool or the Files tab in the Domino Administrator. The second column lists the equivalent command-line options that you use when you run Compact using a console command or using a Program document.

<i>Option</i>	<i>Command-line equivalent</i>	<i>Description</i>
Compact only this database or folder (To specify databases to compact using the Files tab, select the databases in the files pane.)	<i>database path</i> Specify any additional options after the database path.	To compact a database in the Domino data folder, enter the file name, for example SALES.NSF. To compact databases in a folder within the data folder, specify the database path relative to the data folder. For example, to compact all databases in the folder DATA\SALES, specify SALES. If you choose "Compact all databases" (or don't specify a database path at the command line), Compact compacts all databases in the data folder and in folders within the data folder.

Compact - Options

<i>Option</i>	<i>Command-line equivalent</i>	<i>Description</i>	<i>Notes/Domino Release</i>
Compact database only if unused space is greater than x percent	-S percent	Compacts all databases with a specified percent of unused space. For example, if you specify 10, databases with 10% or more recorded unused space are compacted. Note that unused space calculation is not always a reliable measure of unused space.	R4 and R5
Discard any built view indexes	-D	Discards built view indexes. Use this option to compact databases just before you store them on tape, for example. Does copy-style compacting.	R4 and R5
Keep or revert database back to R4 format Keep or revert database back to R3 format	-R	Compacts databases without converting to the current release file format of the server that stores the databases or reverts databases in the current release file format to the previous release file format. For example, on R5 servers, this option compacts R4 databases without converting them to the R5 file format and converts R5 databases to the R4 file format. This option uses copy-style compacting.	R4 and R5
Set maximum size of database to 4GB	-M	Sets a maximum database size of 4GB and compacts a database. Used only on Release 4 file format databases. Does copy-style compacting.	R4 and R5

Compact - Style

<i>Option</i>	<i>Command-line equivalent</i>	<i>Description</i>	<i>Notes/Domino Release</i>
Compaction style: In-place (recommended)	-b	Uses in-place compaction and recovers unused space without reducing the file size, unless there's a pending structural change to a database, in which case copy-style compaction occurs. This is the recommended method of compacting.	New to R5
Compaction style: In-place with file size reduction	-B	Uses in-place compaction, recovers unused space and reduces file size, unless there's a pending structural change in which case copy-style compacting occurs. If you use transaction logging, do full database backups after compacting completes.	New to R5
Compaction style: Copy-style	-C	Uses copy-style compaction. Use this option, for example, to solve database corruption problems with Release 5 format databases.	New to R5
Compaction style: Copy-style: Allow access while compacting	-L	Enables users to continue to access databases during compacting. If a user edits a database during compacting, compacting is cancelled. This is useful only when copy-style compacting is done.	R4 and R5
Compaction style: Copy-style: Ignore errors and proceed	-i	Enables compacting to continue even if it encounters errors such as document corruption. Only used for copy-style compaction.	R4 and R5

Compact - Advanced

The advanced compact options are not available through the Compact tool in the Files tab of the Domino Administrator.

<i>Option*</i>	<i>Command-line equivalent</i>	<i>Description</i>	<i>Notes/Domino Release</i>
Document table bitmap optimization: On	-f	Disables “Document table bitmap optimization” database property. Does copy-style compaction.	New to R5
Document table bitmap optimization: Off	-F	Enables “Document table bitmap optimization” database property. Does copy-style compaction.	New to R5
Don’t support specialized response hierarchy: On	-h	Disables “Don’t support specialized response hierarchy” database property. Does copy-style compaction.	New to R5
Don’t support specialized response hierarchy: Off	-H	Enables “Don’t support specialized response hierarchy” database property. Does copy-style compaction.	New to R5
Enable transaction logging: On	-T	Enables transaction logging.	New to R5
Enable transaction logging: Off	-t	Disables transaction logging.	New to R5
Maintain unread marks: On	-u	Disables “Don’t maintain unread marks” database property.	New to R5
Maintain unread marks: Off	-U	Enables “Don’t maintain unread marks” database property.	New to R5

* Select “Set advanced properties” before you enable or disable any of these properties.

Compact - Archive

When you use the document archiving tool to archive and delete documents in a database, you can use the following Compact options to archive documents if the database is located on a server and you've chosen the advanced archiving option "Automatically on server."

<i>Option*</i>	<i>Command-line equivalent</i>	<i>Description</i>	
Archive only	-A	Archives and deletes documents from a database without compacting the database.	New to R5
Archive and then compact	-a	Archives and deletes documents from a database and then compacts the database.	New to R5

*The Compact tool in the Files tab of the Domino Administrator provides only the option "Archive database;" this option archives and then compacts.

Other R5 Compact parameters

<i>Option*</i>	<i>Command-line equivalent</i>	<i>Description</i>	
UNK Table	-k	ble	New to R5
UNK Table	-K	es) UNK table	New to R5
Compress data	-n	Make (n)otes small (compress data)	New to R5
Compress data	-N	Make (N)otes big (uncompress data)	New to R5
Overlapping objects	-o	Check for overlapping objects	New to R5

*The Compact tool in the Files tab of the Domino Administrator provides only the option "Archive database;" this option archives and then compacts.

Appendix B

How to turn on large fonts in R5

Notes Release 4 allowed you to choose between two different font sizes: regular and large. In Release 4, you could select the “Large Fonts” option in the User Preferences dialog box. In R5, this option has been removed from the User Preferences dialog box, but you have more control over font size than ever before!

Caution The following is undocumented and unsupported.

Add the entry `DISPLAY_FONT_ADJUSTMENT=3` at the bottom of your `NOTES.INI` file by editing the file directly. This feature is particularly useful for those who are sight-impaired.

Note Use caution when editing your `NOTES.INI` file directly! If you have not edited it before, or do not feel comfortable about it, we recommend you do not edit the file.

Valid values for the `DISPLAY_FONT_ADJUSTMENT` parameter range from -25 to 25. To make your fonts larger, set the value to a positive number. To make your fonts smaller, set the value to a negative number.

If you had “Large Fonts” enabled in R4 and want to disable them, you’ll also need to manually edit your `NOTES.INI` file. In this case, find the `Preferences=` line near the top of the file, make note of the number listed, disregard the negative sign, and add 8. The technical reasoning behind this is explained in the Notes/Domino Gold Release Forum available at notes.net.

Appendix C

Displaying Sametime Connect icon on bookmark bar

R5.0.2 added the ability to launch Sametime Connect from the Notes client. This icon will appear for only those users who have upgraded directly to R5.0.2 or greater. Those users who upgraded from an earlier version of R5 will not see this icon on their bookmark bar.

The R5.0.2 Release Notes recommend that those users delete their bookmarks.nsf file to resolve this problem. However, as noted in Chapter 1, “Ease of using the Notes R5 client,” you will lose all of your bookmarks if you delete bookmarks.nsf and let your client rebuild a new one for you.

Here is the workaround which will not require you to delete bookmarks.nsf:

1. Open the UserBookmarkOrder outline for your mail file in Designer.
2. Create a new outline. If you want it to look like the one Notes provides, place it below the Replicator outline entry.
3. The outline entry properties should be as follows:

Content type = Action

Value = Computed

```
click on the @ symbol and enter @If(
@IsAppInstalled(@RegQueryValue("HKEY_LOCAL_MACHINE";
"Software\\Lotus\\Sametime Client"; "BasePath") +
"\\Connect"); @Return( @Command([Execute];
@RegQueryValue("HKEY_LOCAL_MACHINE";
"Software\\Lotus\\Sametime Client"; "BasePath") +
"\\Connect")); "");

ip := @DbLookup("": "";
@LocationGetInfo([SametimeServer]):"names.nsf"; "$ServersLo
okup"; @LocationGetInfo([SametimeServer]); "NetAddr_0");

@URLOpen("http://" + @If(!@IsError( ip) & @Trim(@Text(IP))
!= " "; IP + "/STCenter.nsf"; "www.sametime.com"))

Image = from the folder select Link - Sametime Connect
```

You will need to restart the Notes client for the bookmarks to be refreshed once this is complete.

Appendix D

Applying R5 folder design

After you have upgraded your mail template to R5, you will immediately notice that all of the folders that were created prior to that moment still have the look and feel of when they were created.

The attached button script will perform the following:

Note The following code is not supported and is used at your own risk.

1. It will open the user's current mail database. It determines this by looking in the current Location document.
2. It will build a list of folders which are not hidden, but which are protected. Those are the folders that you as a user created versus those that were delivered with the mail template.

Note There are also provisions for your application developer to add to a modifiable list of other folders to ignore. This list would include any folders that your company may have added in support of a company application.

3. For each remaining folder, the script selects all documents in that folder, and copies them into a new temporary folder with the default R5 design.
4. The number of documents in the new folder is then compared to the number of documents in the original folder, and, if everything looks correct, the old folder is removed and the new folder is renamed to the original folder's name.

Tip See additional comments within the code for information on pop-ups.

This button will basically do what the user would do “manually” to upgrade a folder to the R5 look and feel.

Caution Once you upgrade the design of your mail file to R5, all other users who manage your mail or calendar should also upgrade to R5 to prevent errors from occurring.

```
'Migrate_folders_to_R5:
```

```
Const MB_YESNOCANCEL = 3
```

```
Const MB_YESNO = 4
```

```
Const MB_ICONQUESTION = 32
```

```

Const MB_ICONEXCLAMATION = 48

Const MB_DEFBUTTON2 = 256

Const IDCANCEL = 2

Const IDYES = 6

Const IDNO = 7


Sub Click(Source As Button)

'Last changed on 10Nov99

    Dim session As New NotesSession

    Dim db As NotesDatabase

    Dim doc, doc2, doc3 As NotesDocument

    Dim ecol, ecol2 As NotesViewEntryCollection

    Dim view, view2 As NotesView

    Dim vname, oldname, newname, msg, flags As String

    Dim temp, mail As Variant

    Dim folders, fcount, i As Integer

    Dim dcount, dcount2 As Long


    oldname = "$OldFolder$"

    newname = "$NewFolder$"


    mail = Evaluate("@MailDbName") ' open the current mail

    Set db = New NotesDatabase(mail(0),mail(1))

    If db.DesignTemplateName <> "StdR50Mail" Then ' check template
name
        MsgBox("Your mail database does not appear to have " _
            & "a Notes R5 design")

        Exit Sub

    End If

```

```

msg = "This utility will change the design of ALL your folders " _
& "so that they have the R5 look and feel. All users who have " _
& "access to these folders MUST be using Notes R5 because they " _
& "will NOT be backward compatible to Notes R4.5. " _
& "Do you want to proceed?"
temp = MsgBox(msg , MB_YESNO + MB_ICONEXCLAMATION , _
"Migrate folders to R5?")
If temp <> IDYES Then Exit Sub

If db.Server = "" Then Goto Nowarn ' if mail is on a local replica
Dim db2 As New NotesDatabase("", "")
If db2.OpenByReplicaID("", db.ReplicaID) Then ' if replica exists
    msg = "Your default mail database is on the SERVER but you " _
    & "appear to have a LOCAL mail database replica. Do you " _
    & "want to use the LOCAL copy instead of the SERVER copy?"
    temp = MsgBox(msg , MB_YESNO + MB_ICONEXCLAMATION , _
"Process the local replica of your mail?")
    If temp = IDYES Then
        Set db = db2 ' switch to the local replica
        Goto Nowarn
    End If
End If

msg = "Your mail database resides on a SERVER and this will " _
& "SIGNIFICANTLY increase the time required to migrate your " _
& "folders. Do you want to proceed?"
temp = MsgBox(msg , MB_YESNO + MB_ICONEXCLAMATION , _
"Continue?")
If temp <> IDYES Then Exit Sub

Nowarn:

```

```

msg = "Before running this utility, you should tell Notes " _
& "to rebuild your folder and view indexes. To do this, " _
& "with the mail database open, " _
& "hold both the Ctrl and Shift keys and press the F9 key. " _
& "Do you want to proceed WITHOUT rebuilding the indexes?"
temp = MsgBox(msg , MB_YESNO + MB_ICONQUESTION , "Continue?")
If temp <> IDYES Then Exit Sub

Set view = db.GetView(oldname) ' delete leftover temporary folders
If Not (view Is Nothing) Then Call view.Remove
Set view = db.GetView(newname)
If Not (view Is Nothing) Then Call view.Remove

Print "Bulding a list of folder candidates"
Redim folder(0 To Ubound(db.Views)) As Variant
folders = 0
Forall v In db.Views ' build a list of folder candidates
    If Not v.IsFolder Then Goto Nextview ' if not a folder
    vname = v.Name ' check folder name
    If Left$(vname,1) = "(" Then Goto Nextview ' if hidden
    If Not Iempty(v.Aliases) Then Goto Nextview ' if aliases

    If vname = "Expense Accounts" Then Goto Nextview ' if special'
    If vname = "....." Then Goto Nextview ' (others)

    folders = folders + 1 ' save folder object in candidate list
    Set folder(folders) = v
Nextview:
End Forall
Print "There were" & Str$(folders) & " folder candidates"

```



```

For i = 1 To folders ' loop through folder candidates
    Set view = folder(i)
    vname = view.Name
    Set doc = db.GetDocumentByUNID(view.UniversalID)
    ' If doc.HasItem("$V5Actions") Then Goto Nextfolder ' already R5
    temp = doc.GetItemValue("$Flags") ' assure folder is "private"
    flags = temp(0)
    If flags <> "3PFY" And flags <> "3FYP" Then Goto Nextfolder
    Set ecol = view.AllEntries
    dcount = ecol.Count
    Print "Processing " & vname & " folder (" _
    & Format$(i) & " of " & Format$(folders) & ") with " _
    & Format$(dcount) & " document(s)"

    If dcount = 0 Then ' if document count is zero
        If doc3 Is Nothing Then ' create the dummy document
            Set doc3 = db.CreateDocument
            doc3.subject = "Empty Folder Dummy Document"
            Call doc3.Save(True,False,True)
        End If
        Call doc3.PutInFolder(vname) ' put dummy doc into folder
        Set ecol = view.AllEntries
        dcount = ecol.Count
        If dcount = 0 Then ' count should now be non-zero
            Print vname & " folder is empty"
            Goto Nextfolder
        End If
    End If

    msg = " The original folder (" & vname _ ' common part of
msg
    & ") was not processed. Click OK to continue."

```

```

Call ecol.PutAllInFolder(newname) ' create R5 version of
folder

Set view2 = db.GetView(newname) ' try to locate new folder
If view2 Is Nothing Then
    MsgBox "Unable to find " & newname & " folder." & msg
    Goto Nextfolder
End If

Set doc2 = db.GetDocumentByUNID(view2.UniversalID) ' design
doc

Set ecol2 = view2.AllEntries ' count documents in new folder
If (doc2 Is Nothing) Or (ecol2 Is Nothing) Then
    MsgBox "Unable to open " & newname & " folder." & msg
    Call view2.Remove ' delete temporary folder
    Goto Nextfolder
End If

dcount2 = ecol2.Count
If dcount2 <> dcount Then ' if counts are different
    MsgBox "Wrong count in " & newname & " folder. Please " _
        & "try rebuilding the folder index with Shift+F9." & msg
    Goto Nextfolder
End If

If Not (doc3 Is Nothing) Then ' remove temporary doc if
present

    Call doc3.RemoveFromFolder(newname)
End If

Set temp = doc.ReplaceItemValue("$Title",oldname) ' rename
both

Set temp = doc.ReplaceItemValue("$Name",oldname)
Call doc.Save(True,False,True)
Set temp = doc2.ReplaceItemValue("$Title",vname)

```

```

        Set temp = doc2.ReplaceItemValue("$Name",vname)
        Call doc2.Save(True,False,True)

        Call view.Remove ' delete old version of folder
        fcount = fcount + 1 ' increment count of processed folders
Nextfolder:
    Next i

    If Not (doc3 Is Nothing) Then ' if created, delete dummy document
        Call doc3.Remove(True)
    End If
    Print "Done..."

    If fcount = 0 Then
        temp = "No folders were migrated."
    ElseIf fcount = 1 Then
        temp = "One folder was migrated."
    Else
        temp = Format$(fcount) & " folders were migrated."
    End If
    If fcount > 0 Then temp = temp & " Please close and then " _
    & "re-open your mail database."
    MsgBox(temp)
End Sub

```

Appendix E

Limits for application development features

This list of limits in Domino R5.0 and R4.6 has been compiled from the Notes help information and the Lotus Knowledge Base.

<i>Feature</i>	<i>Limit in Domino R5.0</i>	<i>Limit in Domino R4.6</i>
Maximum size of database	Up to 64GB (32GB for OS/2) or defined by OS file size limit	Up to 4GB or defined by OS file size limit
Maximum size of view	128GB or database size limit	512MB or database size limit
Maximum number of view in a database	No limit; however, as the number of views increases, the length of time to display other views also increases	Same as above
Maximum number of columns in a view	289 ten-character columns; dependent upon number of characters per column	Same as above
Maximum number of fields in a database	~ 3000 (limited to ~ 64K total length for all field names). You can enable the database property "Allow more fields in database" to get up to 64K uniquely-named fields in the database, but certain features that use the list of all field names will not work properly such as full-text querying, the Designer's list of field names, and agents that modify by form.	~ 3000 (limited to ~ 64K total length for all field names).
Maximum number of forms in a database	Limited only by database size	Same as above
Maximum size of a text field	15KB	Same as above
Maximum size of a Rich Text field	Limited only by available disk space up to 1GB	Same as above

continued

<i>Feature</i>	<i>Limit in Domino R5.0</i>	<i>Limit in Domino R4.6</i>
Maximum size of a single paragraph in a Rich Text field	64KB	Same as above
Maximum number of entries in an ACL	ACL size is limited to 32767 bytes which equals ~950 average length hierarchical names	Same as above
Maximum number of Roles in an ACL	75	Same as above
Limits for titles and names	Database title: 96 bytes Field name: 32 bytes View name: 64 bytes Form name: 64 bytes Agent name: 127 bytes including all cascading names. Each name cannot exceed 64 bytes	Database title: 96 bytes Field name: 32 bytes View name: 64 bytes Form name: 32 bytes Agent name: 127 bytes including all cascading names. Each name cannot exceed 64 bytes
Maximum number of columns in one table	64	Same as above
Maximum number of rows in one table	255	255
Maximum number of cascading views in a database	200	200
Maximum number of outline entries	~21,000 entries	Not applicable
Maximum number of outlines in a database	There is no limit	Not applicable
Maximum number of framesets in a database	There is no limit	Not applicable
Maximum length of search query string		In Notes: no limit From a Web browser: 254 bytes
Maximum length of environment variable in NOTES.INI	62 characters (You can add longer names, but this can cause applications to fail.)	ditto
Maximum length of Key string parameter for GetDocumentByKey and GetAllDocumentsByKey of the NotesView class	32,750 characters	200 characters

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Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

IBM Redbooks publications

For information on ordering these publications, see “How To Get ITSO Redbooks.”

- *A Roadmap for Deploying Domino in the Organization*, IBM form number SG24-5617, Lotus part number CT6P8NA
- *Moving from cc:Mail to Lotus Domino R5*, IBM form number SG24-5649, Lotus part number CT6Q9NA
- *The Three Steps to Super.Human.Software: Compare, Coexist, Migrate. From Microsoft Exchange to Lotus Domino. Part One: Comparison*, IBM form number SG24-5614, Lotus part number CT7QTNA
- *The Three Steps to Super.Human.Software: Compare, Coexist, Migrate. From Microsoft Exchange to Lotus Domino. Part Two: Coexistence and Migration*, IBM form number SG24-5615, Lotus part number CT7QWNA
- *Eight Steps to a Successful Messaging Migration: A Planning Guide for Migrating to Lotus Notes and Domino*, IBM form number SG24-5335, Lotus part number CT6HINA
- *The Next Generation in Messaging: Moving from Microsoft Mail to Lotus Notes and Domino*, IBM form number SG24-5152, Lotus part number CT7SBNA
- *The Next Generation in Messaging: Moving from Novell GroupWise to Lotus Notes and Domino*, IBM form number SG24-5321, Lotus part number CT7NNNA
- *Moving from Novell GroupWise to Lotus Domino R5*, IBM form number SG24-5650, Lotus part number CT6QENA
- *The Next Step in Messaging: Upgrade Case Studies for Lotus cc:Mail to Lotus Domino and Lotus Notes*, IBM form number SG24-5100, Lotus part number 12992

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