

IBM Notes Administration Part 1

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1 - Introduction

Lotus Notes is

- traditionally known as a groupware product
- Groupware = technology, which enables groups of people and individuals to collaborate, and share information and knowledge regardless of geographic boundaries and time restrictions
- It may also be described as an enterprise wide information management system

Notes vs RDBMS

- Notes is
 - document-based
 - semi-structured data (fields with types, RTF, graphics etc.)
 - data is located using views
 - resources are shared and distributed
- RDBMS
 - transaction-based
 - structured data (every data element has a type and a fixed definition)
 - data accessed using SQL
 - data is centralized

Components of Lotus Domino are

- Lotus Domino Server
- Lotus Notes Client
- Domino Designer: The Developer's client
- Domino Administrator: The system administrator's client

Server Types

- **Domino Mail Server**
 - Domino Mail Server is the newest member of the Lotus Domino Server Family. Domino combines support for the latest Internet mail standards with the advanced messaging capabilities and enterprise-scale reliability and performance of Lotus Domino. Its integrated, cross-platform services include Web access, group scheduling, collaborative workspaces, and newsgroups. Domino Mail Server is used for messaging only.
- **Domino Application (Utility) Server**
 - Domino Application Server is the leading integrated messaging and applications server. It delivers best-of-breed messaging as well as an open secure Web application platform. The server easily integrates back-end systems with front-end systems business process.
- **Domino Enterprise Server**
 - Domino Enterprise Server is the server for customer requiring mission-critical, highly scalable deployments with uninterrupted access and maximum performance under all conditions. It extends the functionality of Domino Mail and Domino Application Server.

Domino Designer

- Designer is an integrated application development environment which lets developers and web site designers create, manage, and deploy secure, interactive applications for the Domino Server.
- Using Lotus Domino Designer, developers can create applications to meet a variety of business needs, including:
 - Workflow applications that route information.
 - Tracking application that monitor processes, projects and performance tasks
 - Collaboration applications that create a forum for discussions and collaboration
 - Data integration applications that work with relational databases and transactional systems.
 - Dynamic applications that produce content, based on, f.ex. user name, user profile, access rights, or time of day.

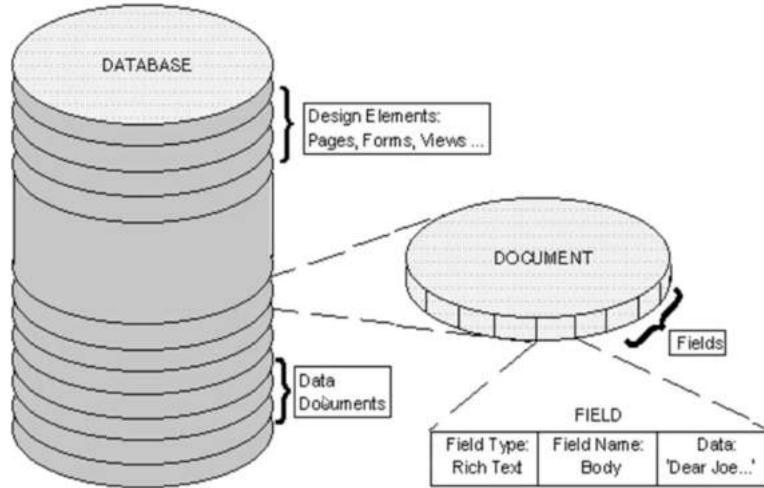
Domino Administrator

- The Domino Administrator is a powerful tool, that allows you to perform all your administrator tasks from one easy-to-use interface.
- The following activities can be performed:

- Register new users and groups
- Manage existing users, groups, mail-in databases, and other resources
- Assign policies to users and groups
- Assign roaming options and internet settings to users

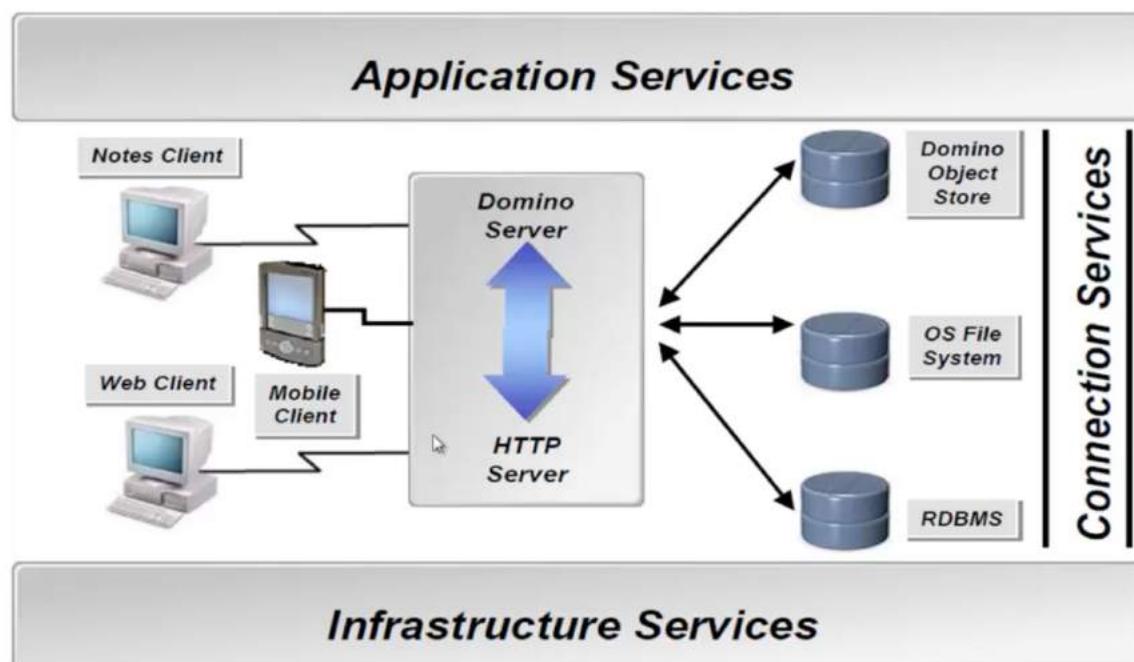
What is a Notes database?

- A Notes application consists of one or more Notes databases created for a particular purpose. Some databases are used for storing and composing e-mail memos; others serve as discussion forums.
- Users can work with the application on a LAN, or they can dial-in from another location, and exchange updates over a modem line



2 - Introducing the IBM Lotus Domino 8.5 Environment

Client and Server Architecture



Client and Server Architectural Components

Component	Function
Lotus Domino server (Web-enabled)	<ul style="list-style-type: none"> • A Lotus Domino server is a computer that runs the Lotus Domino server program and stores Lotus Notes databases. A Lotus Domino server runs services that manipulate Lotus Notes data. • Depending on what the request is and who the client is, the server can pull information from a variety of sources, including the object store, the OS file system, a relational database, or a combination of all three.

Lotus Notes, Web, and mobile clients	<ul style="list-style-type: none"> • Lotus Notes clients can access Lotus Domino data both on servers and locally, providing portable access to data. • Web clients can access Lotus Domino data on the server to display in a browser. • The iNotes Web client provides access to mobile clients.
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Client and Server Architectural Components

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Lotus Domino Server Types

Server type	Function
Lotus Domino Utility Server	<ul style="list-style-type: none"> • Provides standard Lotus Domino application services and custom Lotus Domino applications for Lotus Notes and Web clients, as well as support for clusters. • Note: This server does not include messaging services.
Lotus Domino Messaging Server	<ul style="list-style-type: none"> • Provides messaging services • Note: This server does not include application services.
Lotus Domino Enterprise Server	<ul style="list-style-type: none"> • Includes the functionality of both the Lotus Domino Utility and Domino Messaging Servers, including support for clusters

Default Location Documents

A location document connects you to applications on servers by providing a place to specify information such as the name of your mail server, whether you use a passthrough server, or even which Lotus Notes ID to use.

The following default location documents are created using information you specify when Lotus Notes is configured:

- Home
- Offline
- Online
- Travel

Client Types

Users who have mail files on a Lotus Domino server can use either the Lotus Notes client or an Internet client to access their mail:

- **Lotus Notes clients:** Use Lotus Notes protocols to send and access mails on a Lotus Domino server; a Lotus Notes client can also act as an Internet mail client.

- **Internet clients:** Access mail files through the Lotus Domino POP3, IMAP, or HTTP servers. POP3 and IMAP clients send mail using SMTP.

The Object Store

The **Object Store** is the basic building block for the Lotus Notes architecture. It is where all Lotus Notes data resides in the form of an NSF application.

An **application** is a solution to a particular business problem that may contain one or more databases and other components.

Components of Lotus Domino Applications

Lotus Domino application element	Description
Documents (or data notes)	Contains data, such as text, graphics, and various file attachments.
Application Design (design notes)	Forms, views, agents, etc.
ACL entries	Security entries to control access to the content of the Lotus Domino application.
Database header	Information about the database itself, such as title and replication history.

Database Types and Applications

Type	Can be used for
E-mail/PIM (personal information management)	<ul style="list-style-type: none"> • E-Mail • Group Calendar Management • Instant Messaging • Voice Integration
Broadcast/Reference	<ul style="list-style-type: none"> • Policies and Procedures • Product Catalog
Discussion	<ul style="list-style-type: none"> • Product Ideas
Tracking/Workflow	<ul style="list-style-type: none"> • Customer Service • Product Design • Expense Reporting • Order Processing
TeamRoom	<ul style="list-style-type: none"> • Project Team Collaboration
Microsoft Office Library	<ul style="list-style-type: none"> • Document Collaboration

Required Server Applications

Database title	File name (NSF)	Function
Lotus Domino Directory	Names	Directory of information about users, servers, groups, and custom entries. The documents contain detailed information about each user and server.

Administration Requests	Admin4	Tracks and records requests and process to support automating administration tasks.
Certification Log	CertLog	Maintains records of certified Lotus Domino IDs.
Monitoring Configuration	Events4	Stores configuration records for statistics reporting and monitoring tools, and stores a listing of server messages.
Lotus Domino server log file	Log	Stores information about performance, statistics, and activities on the Domino server.
Monitoring Results	StatRep	Records information about the activity on one or more Lotus Domino servers.
Mail Router mailbox	Mail.box	Stores mail from a user that is in route to another user.

The Domino Directory

The **Domino Directory** (names.nsf) stores the information that allows Lotus Domino servers and clients to function properly.

Information	Stored in documents
Who are the users?	Person
What are the Lotus Domino Servers?	Server
How do servers connect to each other and exchange information?	Connection
What user groups are available for mail distribution lists and access lists?	Group
How do servers perform special functions?	Configuration

Lotus Domino Domains

A **domain** is a collection of servers and users that share a single Lotus Domino Directory. The primary purpose for a domain is mail routing.

Categories of Lotus Domino Services

Service	Description
Application	<p>Provides tools to create applications:</p> <ul style="list-style-type: none"> • The Lotus Domino Designer, a special client license that provides a design environment for building customized applications including Web applications • Lotus Notes templates, models for creating applications quickly and easily. • The formula language, a scripting language developed for Lotus Notes. • IBM, Lotus Script language, as well as support for Java, JavaScript, C++, and CORBA.
Connection	Enables the use of Lotus Domino with existing relational data sources.

Infrastructure	<p>Provides the foundation for Lotus Domino:</p> <ul style="list-style-type: none"> The application engine that runs all the scripts and puts together the completed dynamic page. Core services, such as directory, messaging, security, and replication that are the main server components of Lotus Domino. Protocols that describe how to communicate with the server.
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Core Lotus Domino Services

Service	Description
Directory	A mechanism by which users and servers are categorized in a Lotus Domino environment.
Security	Tools and services that control access to servers and applications, including the authentication of users.
Messaging	Services, databases, and monitoring tools that support both Lotus Notes and Internet mail
Replication	A process of periodically updating replica databases on all servers, regardless of location.
Maintenance	Tools, services, and databases that support server maintenance and monitoring.

Server tasks serve various purposes: Some perform specific tasks, such as mail routing.

Others run in the background to perform complex procedures, such as compacting databases and updating indexes.

Task name	Description	Runs
Administration Process (Admin Process)	Automates a variety of administrative tasks.	On server startup
Agent Manager	Manages and runs agents on a server. An agent performs a series of automated tasks according to a set schedule or at the request of a user.	On server startup
Database Compactor	Compacts all databases on the server to reclaim space freed by the deletion of documents and attachments.	Based on a schedule
Designer	Updates all databases to reflect changes to templates.	Based on a schedule
Event Monitor	Monitors the server for selected events defined by the administrators.	As needed.
HTTP Server	Enables a Lotus Domino server to act as a Web server, so that browser clients can access databases on the server.	On server startup (if enabled)
Replicator	Replicates databases with other servers.	On server startup
Router	Routes mail to other servers.	On server startup (for mail servers)
Statistics (Stats)	Records database activity in the log file.	As needed

3 - Performing Basic Administration Tasks

- Identify the elements of the Lotus Domino Administrator interface
- Use online help
- Navigate in IBM Lotus Domino Administration and perform basic IBM Lotus Domino Administrator tasks
- Set administration preferences in Lotus Domino Administrator
- Describe policies

Levels of administrative access

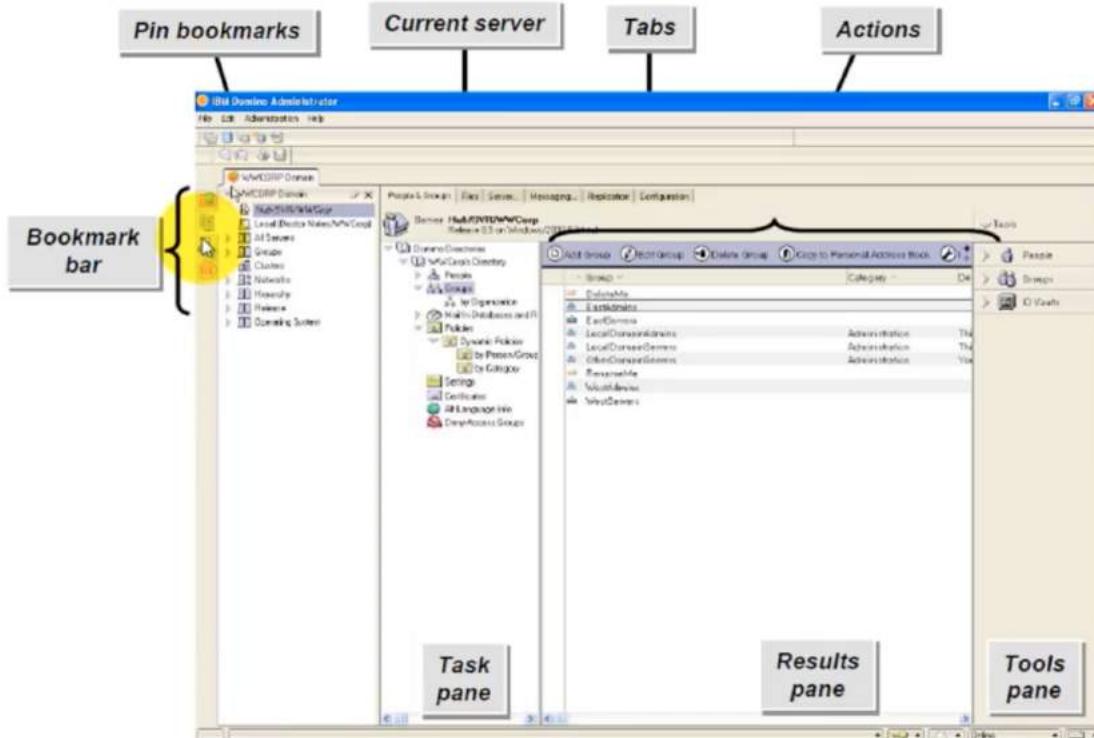
- Access servers
- Administer one or more servers
- Add/modify users, servers, and certifiers
- Add/modify server configuration information

Lotus Domino Administration Tools

Tool	Description
Lotus Domino Administrator	Allows administrators to make changes to the Lotus Domino environment, such as: <ul style="list-style-type: none">• Modify server settings.• Set up server connections.• Add new users, servers, and groups to the Lotus Domino environment.• Monitor server activity.
Lotus Domino Web Administrator	Provides administrators with the majority of features available through the Lotus Domino Administrator using a Web browser
Lotus Domino Console	Provides a server console on any platform that supports Java, allowing an administrator to: <ul style="list-style-type: none">• Enter text-based server commands.• Remotely start and stop the server.

The Lotus Domino Administrator Interface

Component	Description
Action bar	Contains buttons to act on documents displayed in the view.
Bookmark bar	Contains icons to display a list of servers in the domains you administer and icons to start the Lotus Notes client and Lotus Domino Designer client, if installed.
Bookmarks window	Displays a list of servers in a domain.
Server pane	Displays the servers in the domain, grouped in different views.
Tabs	Contains general administration tasks.
Task pane	Provides a logical grouping of administration tasks organized by tabs.
Results pane	Displays the results of the current task.
Tools pane	Provides additional functions associated with the selected tab.



The Person Document

A **Person document** describes a Lotus Notes or non-Lotus Notes user in the Lotus Domino Directory.

A person document can be created:

- When you register a user in the user registration interface of Lotus Domino Administrator
- When you use the **Add Person** action on the **People & Groups** tab in Domino Administrator

Groups

A **group** is a list of users and/or servers who have something in common.

A group must have an owner.

Groups can be used to:

- Provide a group of users access to an application
- Deny a group of users access to a server or application
- Send mail to a distribution list

Tasks on People & Group Tab

From the **People & Groups** tab, administrators can add, modify and view:

- Users in the domain
- Groups defined in the domain
- Documents defining mail-in databases and resources for scheduling
- Policies and settings documents used to streamline workstation setup
- Certificates used for authentication
- ID vaults

Tasks on the Files Tab

- View file information
- View disk space information
- Add, modify and delete folder and database links
- Perform database management tasks.

Tasks on the Server Tab

- Issue commands to the Lotus Domino Server
- View server information to analyze and troubleshoot server performance
- Monitor server tasks and statistics throughout the domain

Lotus Domino Replication

Lotus Domino replication is the process of exchanging modifications between two database replicas so that the same database may be updated and shared by many users in different locations accessing different servers.

Tasks on Replication Tab

- View the Replication schedule for a server
- View Replication events that have previously occurred
- View Replication Topology maps

Tasks on Configuration Tab

From the **Configuration** tab, administrators can change the following settings:

- Server
- Messaging
- Replication
- Directory
- Web server
- Monitoring configuration
- Cluster
- Offline Services
- Certificates

Server Document

Each server in the domain has a server document that contains formation about the server.

Lotus Domino uses this information during server startup and for security.

Domain Documents

Information about other domain connections is stored in Lotus Domain documents.

Lotus Domino uses this information for replication and mail routing.

Configuration Documents

Some server settings are stored in the server documents; others are stored in configuration settings documents.

Lotus Domino uses this information during server startup.

Connection Documents

Information about how servers should establish connections is stored in Connection documents.

Lotus Domino uses this information to determine how to connect to another server for replication and mail routing.

Administration Preferences

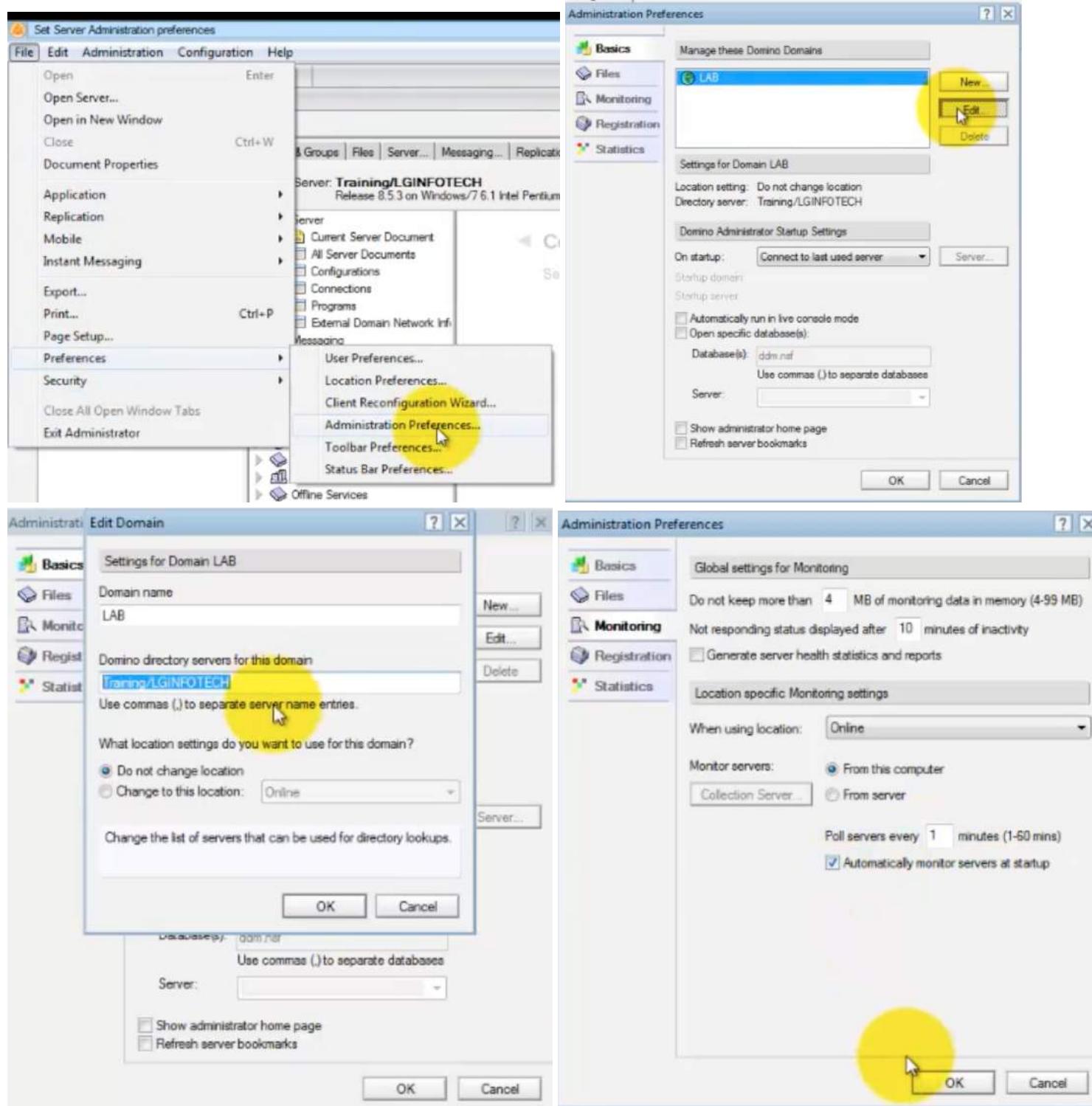
Preferences include the following choices:

- The domains to administer
- The type and order of file information displayed
- The way in which Lotus Domino collects and displays server monitoring data
- Teh defaults to use when registering users, servers, and certifiers

Activity: Set Administration Preferences

Step	Action
1	Click File -> Preferences -> Administration Preferences
2	For Basics , verify that the xxx domain is selected, and click Edit .
3	Verify, that the Domino Directory server is Hub/SVR/xxx .
4	Verify, that " Do not change location " is selected and click " OK ".
5	Click " Monitoring ", and verify that " Monitor servers from this computer " is selected.
6	In the " Poll servers every x minutes " field, type " 5 ".

7	Select "Automatically monitors servers at startup"
8	Click "OK" to close the Administration Preferences dialog box



Policies

A **policy** is the Policy document and its associated settings documents:

- Policies can control many user and administrative functions
- Policies can apply to various sets of users: an entire organization, an OU, a group of users, or even one user
- Multiple policies can be applied to the same user and can contain contradictory values for the same setting

Policy Documents

A **Policy document** contains pointers to selected settings documents.

The combination of a policy documents and its settings document constitutes one policy.

Settings Documents

Policies contain one or more of the following settings documents:

- Registration
- Mail
- Desktop
- Archiving
- Security

4 - Designing a Hierarchical Naming Scheme

Organizations

An **organization** defines the naming hierarchy for a Lotus Domino environment, which is used for security.

Organizational Unit

An **organizational unit (OU)** generally defines an organization's hierarchy as it relates to people

Organization Certifiers

An **organization certifier** is a special file created at the time the first Lotus Domino server is set up in the company. It is the top of the hierarchy and is used to certify the resources in the entire infrastructure.

Hierarchical Naming

HierarchicalNaming is used to guarantee unique user and server names across a large network.

Components of a Hierarchical Name

Component	Description	Characters	Required
Common Name (CN)	The persons' full given (first) and family (last) names, or the server name.	80 maximum	Yes
Organizational Unit Name (OU)	Typically, a department or location name.	Up to 32 per OU	No
Organization Name (O)	Typically, a company name.	3 to 64	Yes
Country (C)	ISO standard two-letter abbreviation for the country and top-level location	0 or 2	No

Organizational Unit Naming Recommendations

Criteria	Description
Location	Each locale has a separate OU for local administration of servers and users. Use this as an alternative to using the country code name component. The site or country abbreviation easily identifies the geographic location of the server or user.
Department	Each department has a separate OU, which keeps the Lotus Domino naming scheme directly in sync with the corporate organizational chart.
Work groups	Most often used to distinguish two users with the same name who work in the same department

- Use short, descriptive names
- Do not include spaces
- Create a separate OU for servers for administrative control
- Use three or fewer levels of OUs in the hierarchical naming scheme

Separate Server OUs

Benefit	Description

Cross-certification	If two organizations wanted servers to be cross-certified, but did not want users to be cross-certified, then having each organization's servers in a separate OU would allow the creation of a server OU to server OU cross-certificate. Since the cross-certificate would be server OU to server OU, no end user from either organization would be allowed to directly access servers in the other organization. However, the servers would be allowed to authenticate and replicate.
Administration control	If the organization decided to use a unique OU for server registration, and that OU is tightly controlled by an upper-level administrator, the likelihood of having a renegade or unauthorized server show up is reduced. Any server registered with a different OU will be readily apparent to administrators through various views of a Lotus Domino Administrator

Server Naming Recommendations

The server's common name should:

- be short, descriptive names
- contain an abbreviation for the region where it resides
- not contain any spaces
- be easily expandable
- be easily recognizable for the tasks the server performs

For example:

- Hub servers in the East might be named as follows:
 - EastHub01, EastHub02, EastHub03, and so on.
- Mail servers in the West might be named as follows:
 - WestMail01, WestMail02, WestMail03, and so on.

Server Host Names and Common Names

The server's common name can be the server's fully qualified Internet host name.

Consider:

- Use the internet host name in the Lotus Domino server common name, if clients accessing the server are:
 - On the internet
 - On a large distributed TCP/IP intranet
 - In foreign Lotus Domino domains on a TCP/IP intranet, and server address sharing between the domains is not practical
- Use the simple Lotus Domino server common name, if clients accessing the server are:
 - Primarily in the same Lotus Domino domain or in a domain that will share server address information with the domain
 - Rely heavily on network protocols other than TCP/IP
 - Require special server naming conventions better suited to the company

User Naming Recommendations

User's common name is typically the user's first name and last name.

- User's common name is used for internal mail addressing and determines the user's Internet address.
- Lotus Domino includes an administrative tool to change a user's common name or the user's place in the hierarchy:
 - If a user's marital status changes, so their name is changed
 - If a user moves to a different department

Planning a Hierarchical Naming Scheme

To plan a hierarchical naming scheme, consider:

- Organization name, which should be a short and easy name. Many organizations choose to use their Internet domain or company name.
- Organizational units:
 - Should provide an easy and simple method to organize user and server names. Multiple OU levels may be more difficult to manage.

- Can be used for providing unique names.
- A strategy for distinguishing identical names in the same organizational hierarchy should be determined during the planning stages.

How to Design a Hierarchical Naming Scheme

To design a hierarchical naming scheme:

- choose a domain name
- choose an organization name
- decide whether or not to use country codes
- determine organizational units based on the company's structure
- determine server naming conventions
- determine user naming conventions

5 - Authenticating with Domino Servers

Security Controls

Security Controls determine access to servers and resources in the Lotus Domino environment.

Use controls to

- allow access to authorized users and servers
- block access for unidentified or specific users and servers

Two levels of security:

- Authentication
- Access controls

Authentication establishes trust between two entities. Once trust is established, **access controls** determine what information is available to the entity.

Bank Card example

To gain access to bank account information, authentication occurs through the use of:

- A bank card containing user account information
- A Personal Identification Number (PIN) identifying you as the owner of the card.

The PIN, along with the card, matches the account information stored in the bank.

Therefore, the bank trusts that you are the owner of the card. You are allowed to access the bank account.

By using the bank card, you are also trusting that the bank will provide the correct access.

This establishes two-way trust.

Certificates and ID files

A **certificate** is a unique electronic stamp stored in an ID file that associates a name with a public key.

An ID may have many certificates.

A **certifier ID** is a file that generates the electronic stamp to indicate a trusted relationship.

Certifier IDs result when entities are created during the registration process.

Types of certificates

A **Notes certificate** is stored in a Lotus Notes or Lotus Domino ID file that associates a name with a public key.

Certificates permit users and servers to access specific Lotus Domino servers.

An **Internet (X.509)certificate** lets a user access a server using SSL client authentication or send an S/MIME message.

Internet certificates can be stored in the Lotus Notes ID.

ID Files

A **Lotus Notes ID** identifies a user or server to Lotus Domino systems. The user and server registration process creates a unique ID.

Types of ID files used in the Lotus Domino environment:

- The certifier ID file allows an administrator to certify Lotus Notes users with hierarchical names. The certifier ID file stamps server, user, and other certifier IDs with its certificate.
- The user ID file is created by the administrator and contains information that Lotus Notes uses to identify a user. The file contains certificates, and the name of the ID owner.
- The server ID file is created by the system administrators and stores IDs on the server.

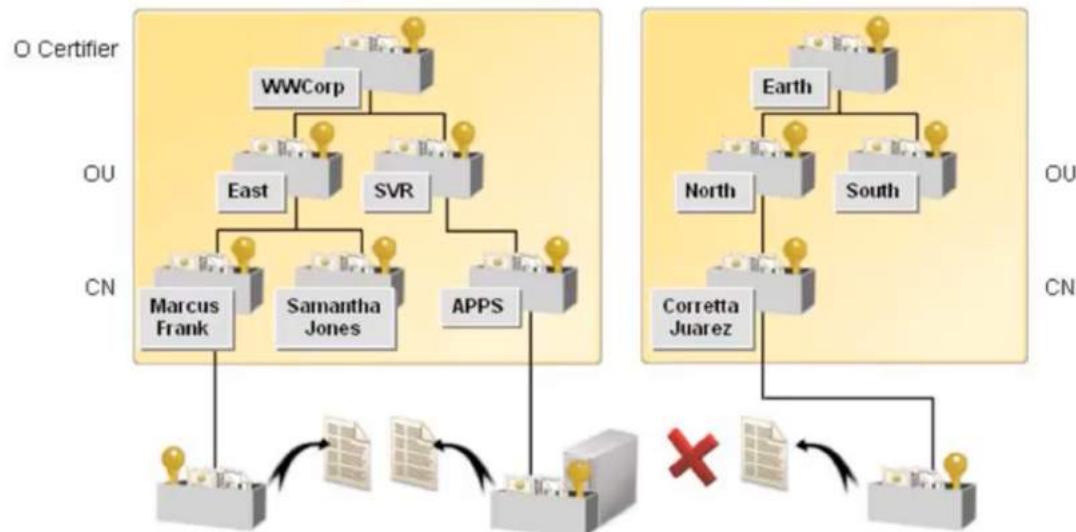
Components of an ID File

An ID file contains information to identify the owner of the ID in order to determine access to resources in a domain.

Common Certificates

A common certificate is a certificate derived from the same Lotus Notes or Internet (X.509) certifier, or one of its ancestors in the organizational hierarchy.

Certificates and Hierarchies



How Certificates are used in Authentication

Authenticate	Using
In the Lotus Notes/Lotus Domino environment	Lotus Notes certificate
Between Lotus Domino and other applications using Internet Protocols	Internet (X.509) certificate
In the Lotus Notes/Lotus Domino environment and outside the Lotus Domino/Lotus Notes environment.	Lotus Notes and Internet (X.509) certificate (with S/MIME to sign Internet messages between different mail packages)

The ID Vault feature

The ID vault feature in Lotus Domino Administrator 8.5 enables administrators to manage secured copies of Lotus Notes user IDs.

Advantages include:

- Lost or forgotten user passwords can be easily reset or recovered.
- Corrupted user ID files can be automatically replaced with the copies in the ID vault.
- User IDs are automatically synchronized.
- User renames and user key rollovers are automated.

Specifying information during vault creation

- Lotus Notes ID vault name: The name of the ID vault cannot be the same as any organization or organizational unit used in the Lotus Domino domain. In addition, the name cannot be changed after the vault is created.
- Vault ID file location and password: The location of the vault ID file and the password are required for vault administrators to create vault replicas or to delete the vault.

- Vault primary server: There can be only one primary server specified for the vault.
- Vault administrator: At least one vault administrator must be specified during vault creation.

6 - Controlling Access to Resources, ACL & ECL

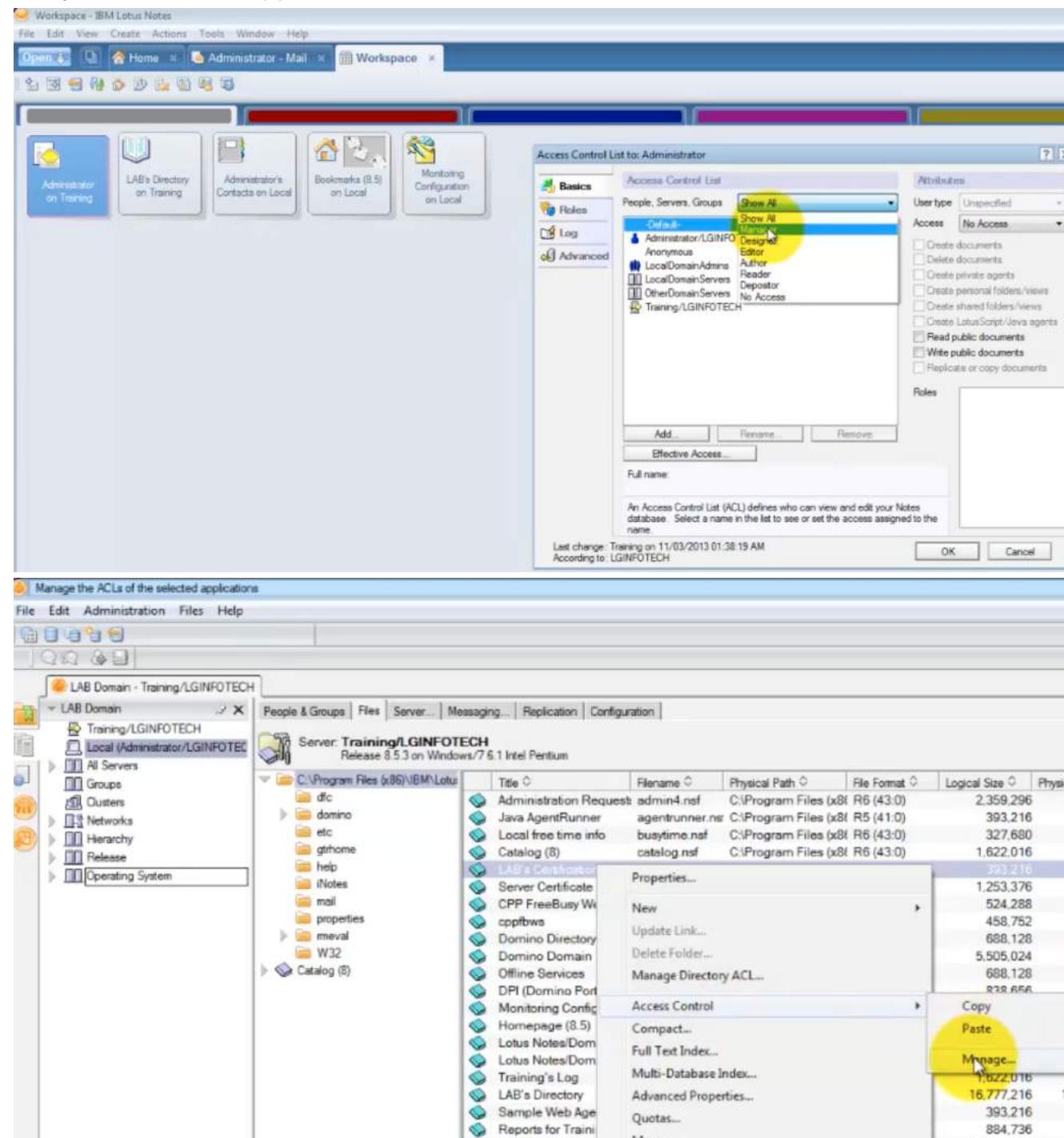
Introduction to Lotus Domino Access Controls

- Lotus Domino controls secure information so it is available only to those who require it.
- Lotus Domino provides settings to selectively control access to server resources.
- Controls can be placed on many levels:
 - Server
 - Database (including information fields on a form)
 - Agents
 - Applets
 - Web pages
- The controls used depend on the security level required for applications and the user access required.
- There are many settings in the Lotus Domino Server Configuration Settings documents that control access to the application.

Access Control Lists

An **access control list (ACL)** determines access to a given database, and the type of access allowed.

Every Lotus Domino application has an access control list.



Roles

A **role** identifies a set of users and/or servers. Roles apply only to the database in which they are created.

Roles vs Groups

- Roles can be created at Database ACL

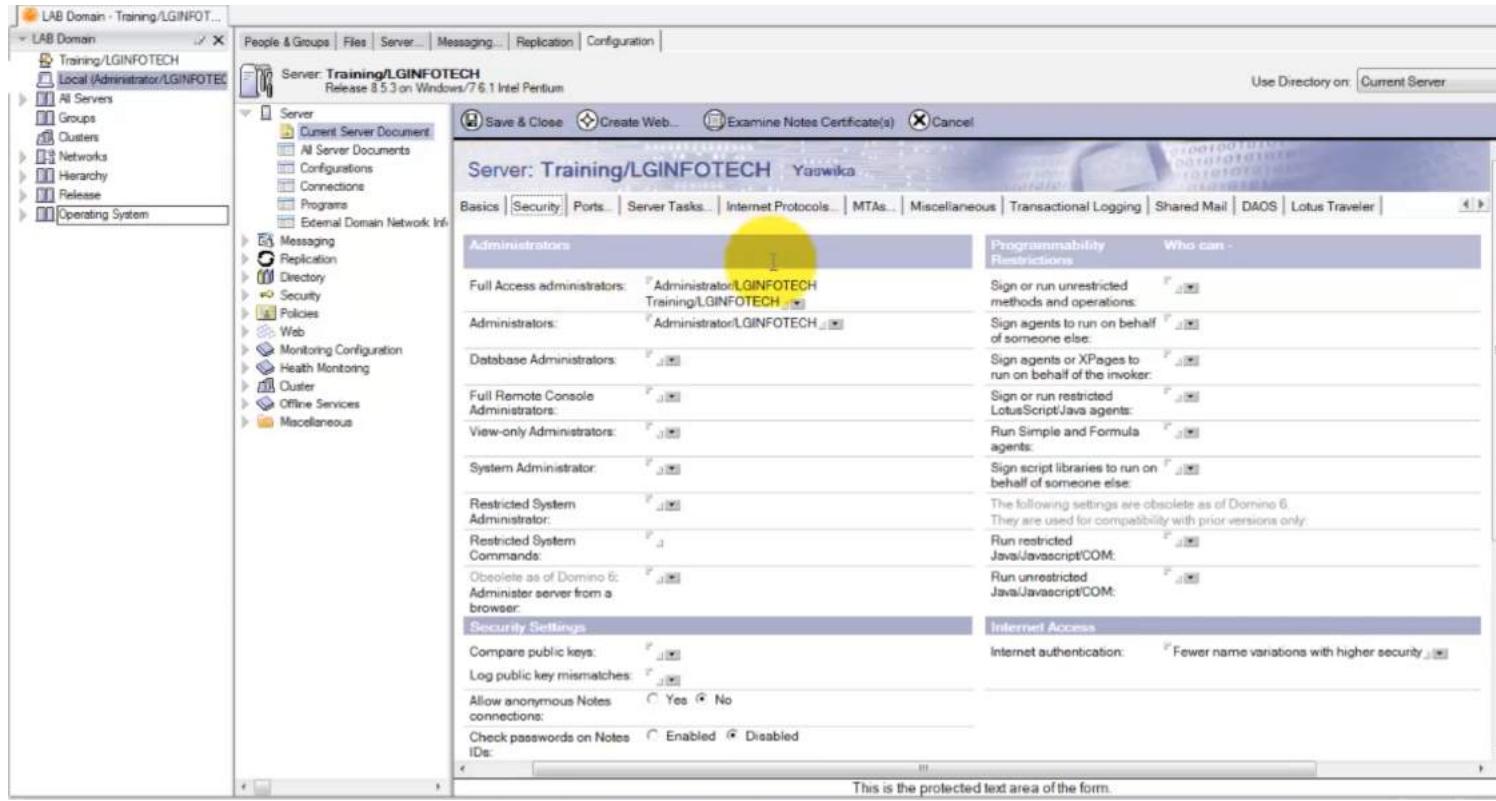
- Roles will be applied to users and groups in Database ACL
- Groups can be created at Domino Directory
- Roles will be applied to groups but groups can't be applied to roles.

How Lotus Domino Controls Access

Access to	Is controlled by
Server, including Lotus Notes clients, Web clients, and other Lotus Domino servers	<ul style="list-style-type: none"> • Server settings and restrictions • Settings that allow and deny access to users, servers, Lotus Notes, and Web clients • Restrictions that allow or deny access to server software and applications • Groups
Lotus Domino file folders	File folder access controls and restrictions
Run Lotus Domino agents (programs that perform specific tasks within a database, such as sending mail messages)	Server restrictions
Databases: <ul style="list-style-type: none"> • Forms and views • Documents • Fields 	<ul style="list-style-type: none"> • Access control lists (ACLs) • Groups • Roles: <ul style="list-style-type: none"> • Subsets of users or servers in an ACL • This adds an additional level of access control over those already controlled by the ACL • Encryption, for field control
Web pages	Web server controls

Stages of Access Controls

1. Successful authentication extracts the name in the Person document (ID file). The name is then checked against the server, file, database, data, and field access.
2. Server access: Name is checked in Server Restrictions or Deny Access for access to the server.
3. File access: Name or group is allowed access to the server's file folders.
4. Database access: Name is checked for access to the database.
5. Data access: Name is checked for view, form, read, and edit access to the document in the database.
6. Field access: ID is checked for the appropriate encryption key to access the field in the document.



Security Using Groups

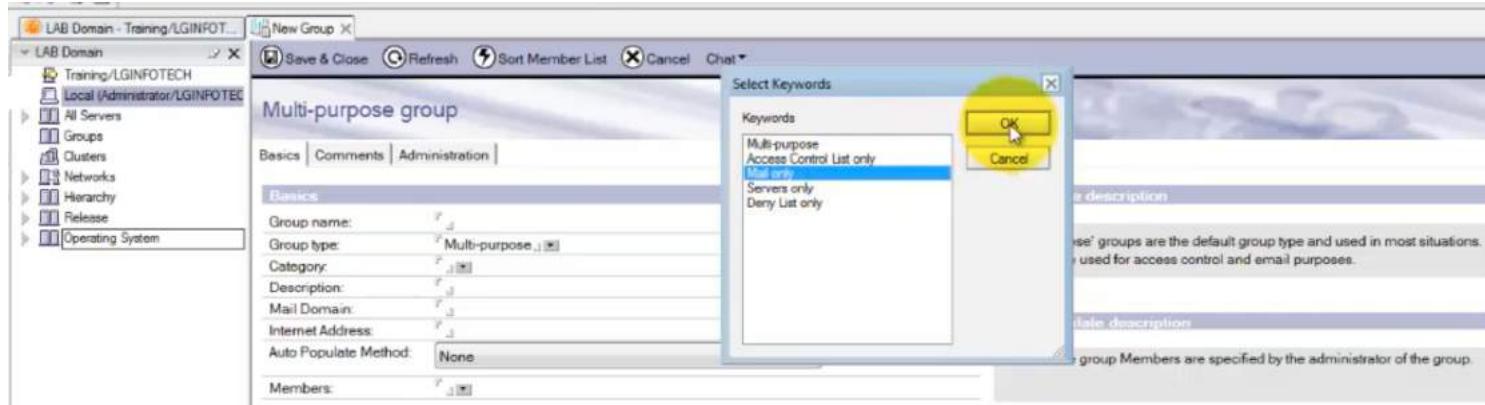
Groups can be used to:

- provide a group of users with access to a database
- provide a group of servers with permission to replicate a database
- deny a group of users access to a server or database

Group Types

Group types are used to define the purpose of the group and determine the views in the Lotus Domino Directory where the group name appears.

Group type	Purpose
Multi-purpose	Multiple uses, such as mail and ACLs
Access Control List only	Adding to ACLs
Mail only	Mailing list group
Servers only	Server groups
Deny List only	Terminated users or other users Note: Deny List groups appear in a different listing



Access Control List Levels

Level	User access	Purpose
No Access	No access to the database.	No access to the database (except, optionally, for a special class of documents called public documents)

Depositor	Can create documents in the database, but cannot read, edit, or delete documents, including those they create.	Cannot replicate Note: This ACL level is not normally assigned to servers.
Reader	Can read documents, but cannot create, edit, or delete them	<ul style="list-style-type: none"> • Can replicate to receive only (not send documents) • Minimum access for servers to get data
Author	Can create and read documents, and edit own documents if Authors fields are used.	<ul style="list-style-type: none"> • Can replicate new documents but cannot modify documents • Minimum access for servers to send data <p>Note: This ACL level is not normally assigned to servers.</p>
Editor	Can create, read, and edit all documents.	Can replicate all new and changed documents.
Designer	Can modify the database design, but cannot modify the ACL or delete the database.	Can replicate all new and changed documents and replicate design elements. Can also create full-text indexes.
Manager	Can perform all operations on the database, including changing ACLs and deleting the database.	Can replicate ACL changes as well as all document and design changes.

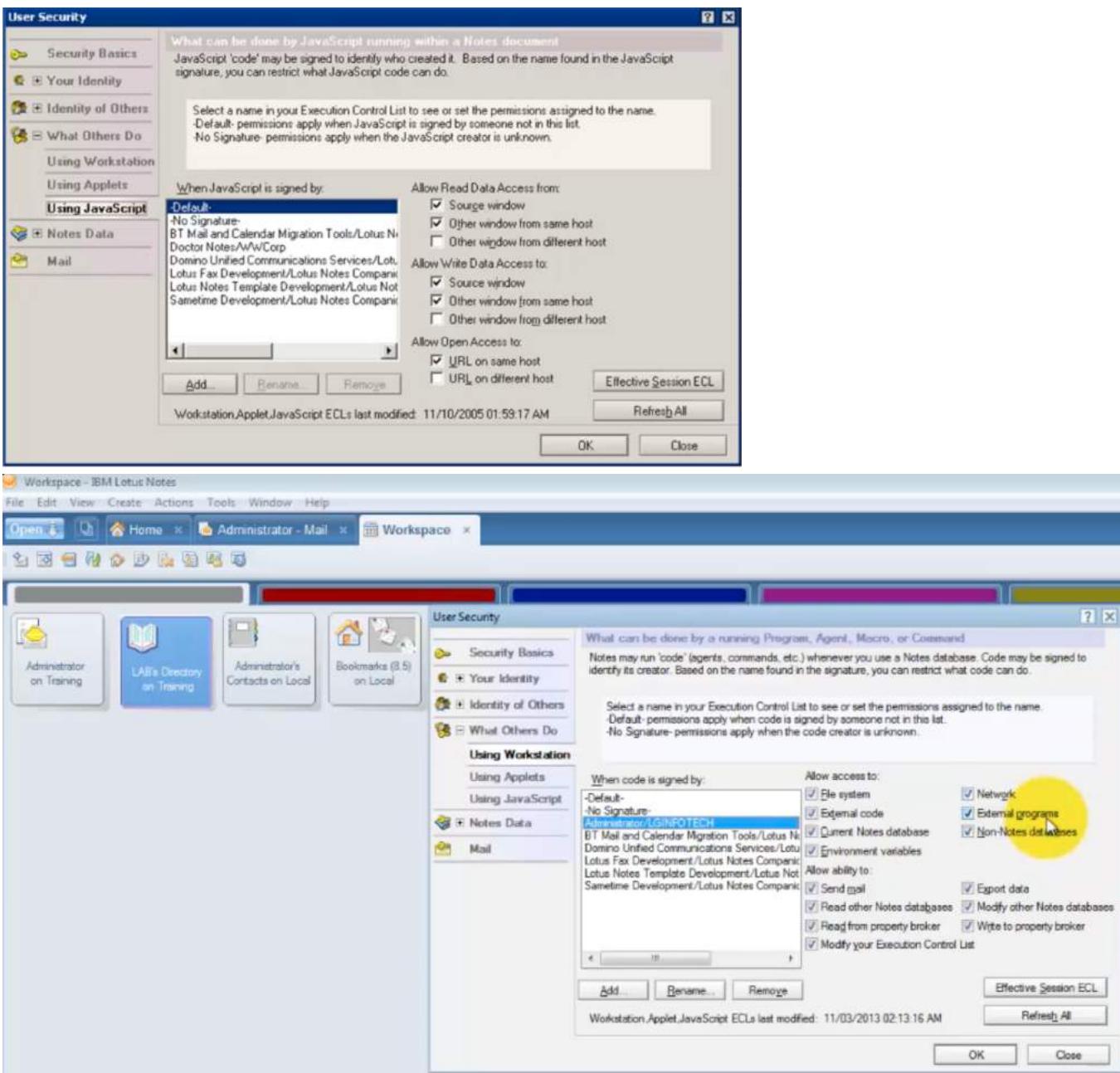
Title	Filename	Physical Path	File Format	Logical Size	Physical Size	Max Size	Quota	Warning
Administration Request	admin4.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	2,359,296	2,359,296	No limit	0	0 1
Java AgentRunner	agentrunner.nsf	C:\Program Files (x86) R5 (41.0)	x86 R5 (41.0)	393,216	393,216	No limit	0	0 0
Local free time info	busytime.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	327,680	327,680	No limit	0	0 1
Catalog (8)	catalog.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	1,622,016	1,622,016	No limit	0	0 1
LAB's Certification Log	certlog.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	393,216	393,216	No limit	0	0 1
Server Certificate Admin	certsrv.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	1,253,376	1,253,376	No limit	0	0 1
CPP FreeBusy WebServ	cplibws.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	524,288	524,288	No limit	0	0 1
cpplibws	cplibws.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	458,752	458,752	No limit	0	0 1
Domino Directory Cache	dbdirman.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	688,128	688,128	No limit	0	0 1
Domino Domain Monitor	ddm.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	5,505,024	5,505,024	No limit	0	0 1
Offline Services	doladmin.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	688,128	688,128	No limit	0	0 1
DPI (Domino Portal Inte	dpcfg.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	838,656	838,656	No limit	0	0 0
Monitoring Configuration	events4.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	30,670,848	30,670,848	No limit	0	0 1
Homepage (8.5)	homepage.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	393,216	393,216	No limit	0	0 0
Lotus Notes/Domino Fa	indr.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	2,621,440	2,621,440	No limit	0	0 1
Lotus Notes/Domino Srv	indr.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	774,144	774,144	No limit	0	0 1
Training's Log	log.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	1,622,016	1,622,016	No limit	0	0 1
LAB's Directory	rofile.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	16,777,216	16,777,216	No limit	0	0 1
Sample Web Agent - Rx	pwresetsemp1.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	393,216	393,216	No limit	0	0 1
Reports for Training/LGI	reports.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	884,736	884,736	No limit	0	0 1
Domino LDAP Schema	schema.nsf	C:\Program Files (x86) R6 (43.0)	x86 R6 (43.0)	2,883,584	2,883,584	No limit	0	0 1

Execution Access

User workstations can be protected by specifying different types of **executionaccess** for different people organizational certifiers who run Lotus Notes scripts and formulas.

The Execution Control List

The default **Execution Control List (ECL)** defines workstations security for the Lotus Notes client.



7 - Introducing Lotus Domino Messaging

Lotus Notes Named Networks

Server that meet the following criteria can be members of the same Lotus Notes Named Networks:

- Are in the same Lotus Domino domain
- Share a common Local Area Network (LAN) protocol.
- Can maintain a constant connection on the same LAN or bridged/routed Wide Area Network (WAN).

Consider separating servers into different NNNS under the following circumstances:

- To control when mail routes between servers.
- To reduce network traffic between regions.

Mail Routing and Lotus Notes Named Networks

To enable communication between servers in other Lotus Notes Named Networks:

- Configure Connection documents.
- Each mail server requires a Connection document.

Mail Routing Protocols

Protocol	Definition	Port
NRPC	Notes Remote Procedure Calls. NRPC can be set up to route mail within a Lotus Domino domain and to route mail between Lotus Domino domains.	1352

Use the following guidelines when determining which protocol to use:

- Use SMTP alone under these circumstances:
 - For Internet communication.
 - If Lotus Domino is being used for mail only.

Use NRPC to take advantage of these Lotus Domino features:

- Sending document and database links via e-mail.
- Lotus Notes public key security.
- Mail-enabled workflow applications.

Mail Routing Components

Term	Definition
Mail file	The Lotus Domino application in which the user creates, sends, retrieves and stores mail messages.
Mail server	A user's mail server is the server where the user's mail file resides and is specified in the Person document in the Domino Directory.
Mailer	The Mailer resides on the workstation and performs these tasks: <ul style="list-style-type: none"> • Verifies the existence and spelling of the name(s) if the recipient is listed in the Domino Directory. • Converts the message to Multi-purpose Internet Mail Extensions (MIME), if necessary. • Deposits the message in Mail.box on the sender's mail server.
Domino Directory	The Lotus Domino application that stores information about the sender's (and possibly recipient's) mail server, mail file system, mail file name, mail address, and connections to other servers for transfer and delivery.
Deny List only	Terminated users or other users Note: Deny List groups appear in a different listing
Mail.box	A special database that resides on every server used for mail delivery. Mail is temporarily stored in Mail.box before the router delivers or transfers the mail
Router	A server-based task that delivers and transfers mail. It checks the Lotus Domino Directory for connections to other servers and deposits mail in user's mail files and other server's Mail.box.

Mail Settings that Affect Routing

Setting	Options
Server	<ul style="list-style-type: none"> • Messaging settings • Connection documents • Domain documents • Configuration documents, including: <ul style="list-style-type: none"> ◦ Inbound controls: SMTP controls for mail from the Internet ◦ Outbound controls: SMTP controls for mail to the Internet
User	<ul style="list-style-type: none"> • Mail storage format <ul style="list-style-type: none"> ◦ Native MIME (Multi-purpose Internet Mail Extensions): Internet mail formats ◦ Notes Rich Text: Lotus Notes and Lotus Domino format

The Mail Routing Process

1. Client Mailer program checks names in the directory.
2. Client Mailer puts mail in Mail.box on home server specified in the user's Location document.
3. Router task on home server polls Mail.box for new messages.
4. Router checks directory for routing information and for addresses on the message and determines message route.
5. Router transfers message to Mail.box on next destination server.
6. Router task on destination server polls Mail.box for new messages.
7. Router checks directory for routing information for addresses on the message.
8. Router delivers mail to recipient's Mail file.

Router Optimizations in Lotus Domino 8.5

Optimizations offer various advantages:

- Decreased amount of time taken for routing a message.
- Decreased message backlogs in the mail.box
- Overall improvement in performance.
- Reduced latency.
- Prevent creation of extra copies of messages.

8 - Designing a Mail Routing Topology

Mail Routing Topologies

A **mail routing topology** establishes, which servers are connected and how they communicate specific information.

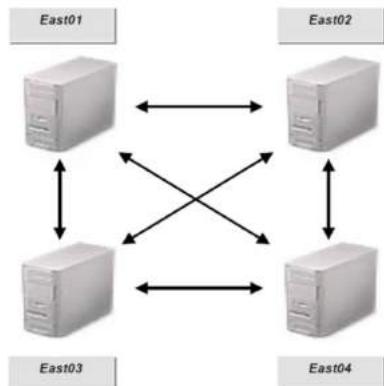
Lotus Domino identifies topologies for:

- Replication: Determines how to connect servers to exchange database changes
- Mail routing: Determines how to connect servers to send mail

Topology Types

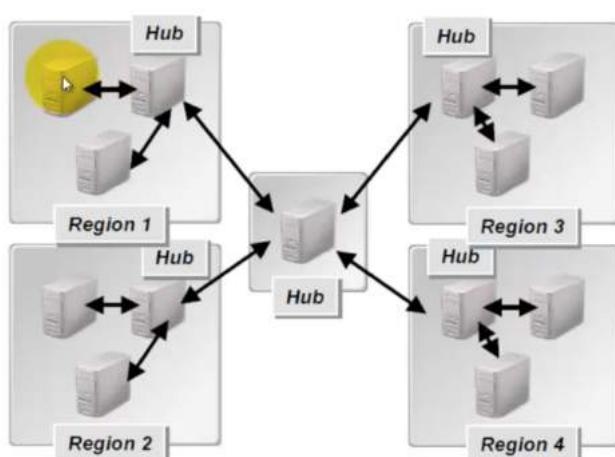
Peer-to-peer topology - Every server connects to every other server.

- Most commonly used when connecting a small number of servers in a workgroup or department



Hub-and-spoke topology - Mail traffic passes between a central hub server and multiple spoke servers; no mail is exchanged directly among the spokes.

- Suited to handling a high volume of mail across a large organization



Hub-and-Spoke Topology Considerations

Considerations include:

- Use hubs when there are six or more servers in the Domino domain.
- A hub machine requires considerable system resources (memory, disk space, and network protocols).
- Use a cluster for hubs to provide failover.

[How to Design a Mail Routing Topology](#)

Guidelines for designing a mail routing topology:

- Determine the number and server membership of Lotus Domino Named Networks based on the network protocols in use.
- Determine the appropriate topology type based on the size and type of the organization. For example, peer-to-peer, hub-and-spoke, end-to-end, or hybrid.

If using hub-and-spoke:

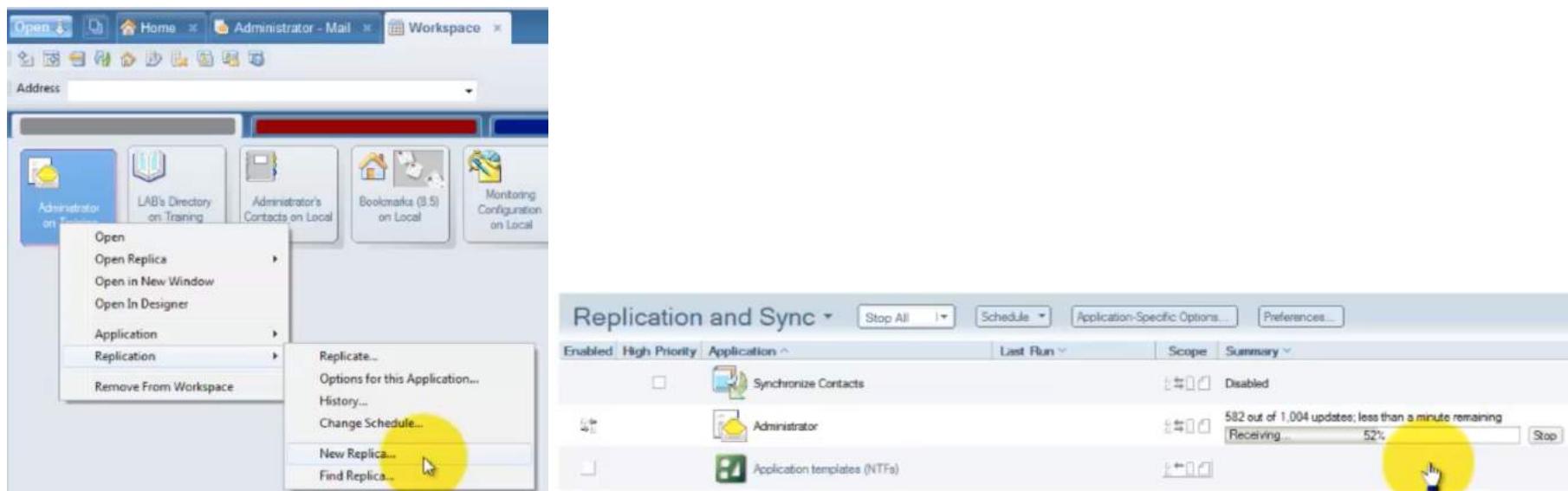
- Determine the number of hubs and the appropriate system resources for each hub.
- Determine if clustering the hubs is necessary.

[9 - Introducing Lotus Domino Replication](#)

[What is Lotus Domino Replication?](#)

Replication is the process of synchronizing documents from the same databases on different workstations or servers over time.

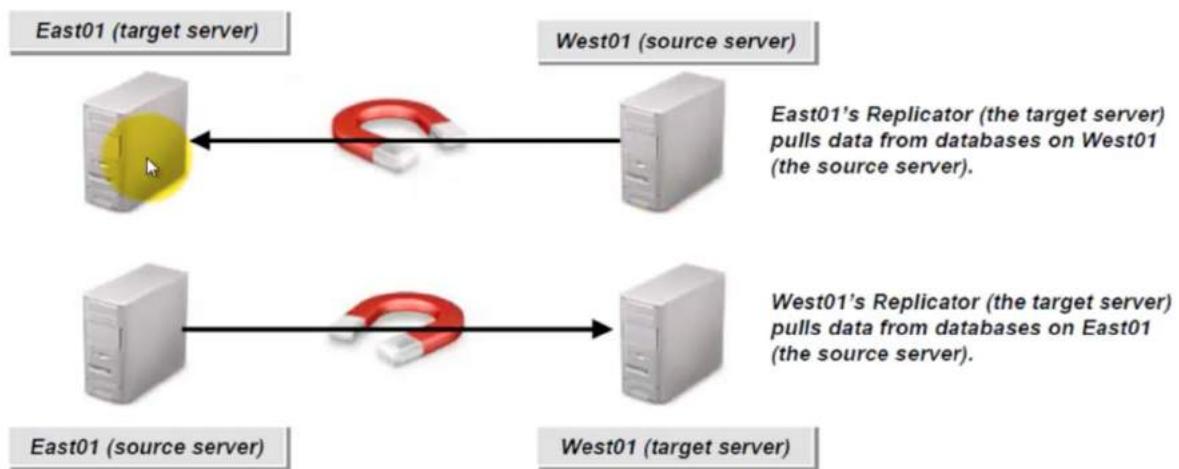
Replication enables exchanging modifications between special copies of databases called **replicas**.



[Components of the Replication Process](#)

Term	Definition
Replicator	The Replicator is a server task that is loaded, but not initiated, at server startup. The Replicator pulls data from or pushes data to another server.
Replica ID	The unique value assigned to a database when it is first created. Replicas of the same database share the same replica ID. The Replicator looks for databases with the same replica ID to synchronize. Replica ID The ID is found on the i tab in Database Properties. Note: A database copy does not share the same replica ID as the original database. Only database replicas share the same replica ID.
Unique Notes Identification Number (UNID)	The unique value assigned to a document when it is first saved. The Identification Number Replicator looks for documents with the same UNID to synchronize. The UNID is found on the corresponding tab in Document Properties.
Replication History	A list of dates and times when two servers or a server and workstation successfully replicated. The Replicator uses Replication History to determine which documents are new, changed, or deleted since the last time the two databases replicated.

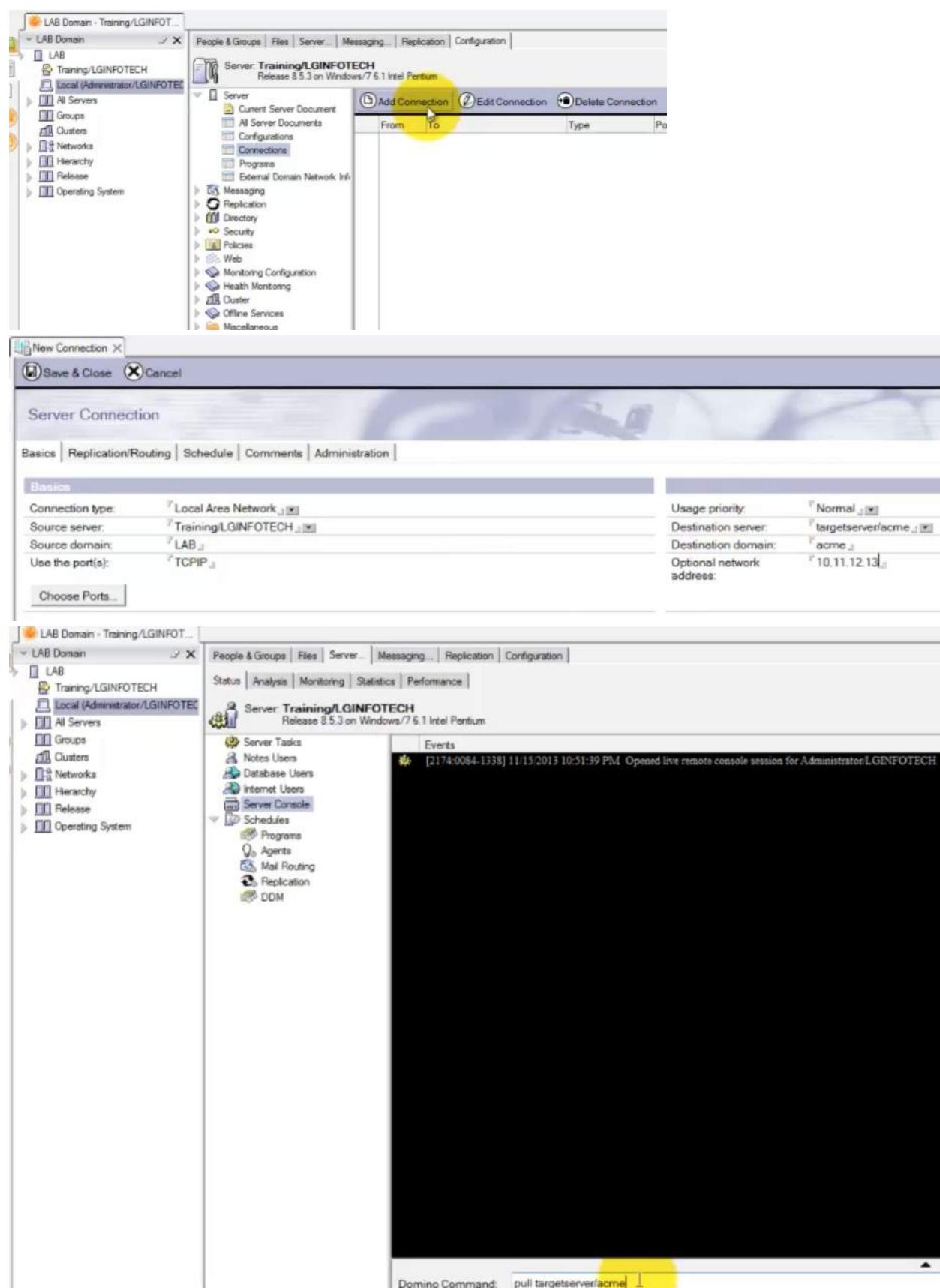
[The Server-to-Server Replication Process](#)



Replication Tools

To initiate server-to-server replication:

- Connection document - Used to schedule replication between two servers
- Server console - Used to force replication between two servers



The Workstation to Server Replication Process

- The server's replicator is not involved in workstation-to-server replication.
- The workstation software reads changed documents from the application on the server and writes those changes to the local replica.

- The ACL, design, and document changes are distributed based on server, database, and document settings.

Database Replicas

Lotus Domino makes it easy to collaborate with others by allowing users to work in database replicas that are located in geographically dispersed servers or on local workstations with Lotus Domino replication keeping those databases synchronized.

The Database Replication Process

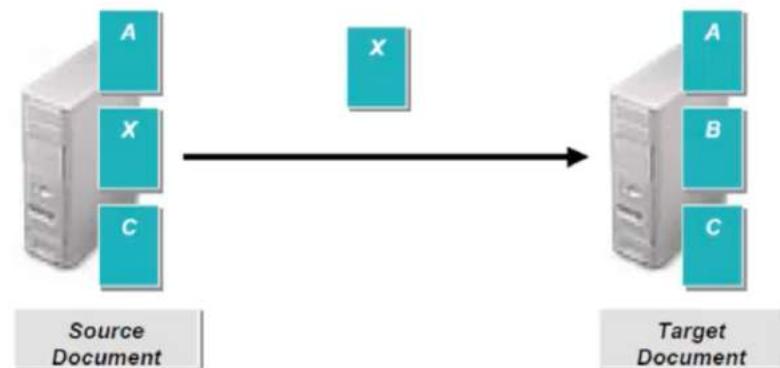
Stage	Description
1	The Replicator compares its list of applications with the called server's list of applications to determine which application they have in common.
2	Working on one application at a time, the initiating server builds a list of ACL, design, and document modifications that have occurred since the last time these two servers replicated.
3	The Replicator pulls (reads and writes) ACL and design and document changes, based on permissions set in each server, application, and document.
4	Upon completion of replication with the first application, the Replicator updates the replication history for that application and moves on to the next application in common. It repeats Stages 2 and 3.
5	When the initiating server has replicated all applications in common with the called server, the Replicator will tag the called server's Replicator to repeat the same process in the other direction.

The Field-Level Replication Process

Field-Level replication is the process of copying only fields that have changed since the last time the two databases replicated.

Field-Level replication reduces

- Replication time
- Network traffic
- Number of replication conflicts



Factors that affect Replication

Factor	Potential problem
Replication schedule	Incorrect information in the Connection document can prevent replication. For example, an incorrect server name.
Replication type	Incorrect replication type can prevent bi-directional replication.

Server access list	If the initiating server is not allowed access to the called server, replication stops.
Authentication	Servers that do not have a certificate in common cannot authenticate, and replication will not occur.
Replica ID	Applications that do not have the same replica ID cannot replicate.
Replication settings	A database where replication has been temporarily disabled cannot replicate.
Access control list	If the called server does not have the appropriate application ACL access on the initiating server, some application elements might not replicate correctly.

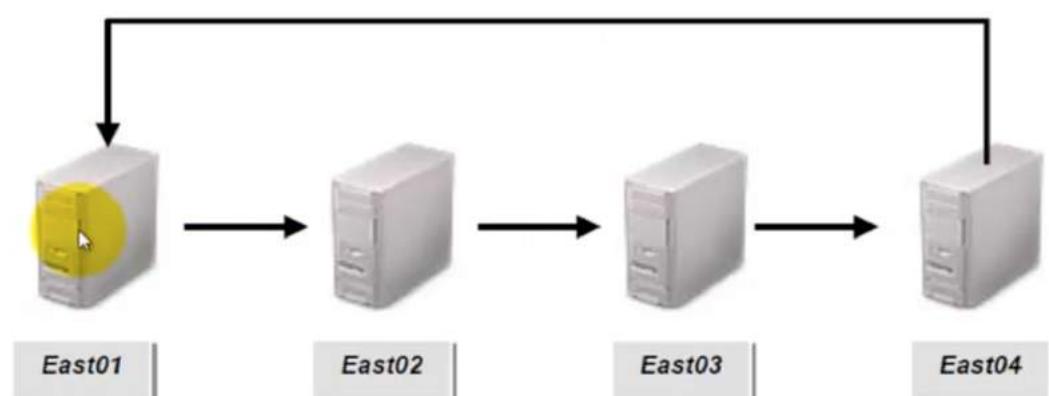
The screenshot displays two main windows from the IBM Notes/Domino Administration interface:

- Top Window: Server Connection - Training/LGINFO... to target**
 - Replication Tab:** Shows "Replication task: Enabled", "Replicate databases of: Low & Medium & High priority", "Replication type: Pull Push", and "File/Directory paths to replicate: /".
 - AutoDialer Tab:** Shows "Use AutoDialer to connect remote server to network: Disabled".
- Bottom Window: Server - Current Server Document**
 - Administrators:** View-only Administrators:
 - System Administrator:**
 - Restricted System Administrator:**
 - Commands:** Obsolete as of Domino 8:
 - Security Settings:** Compare public keys: Log public key mismatches: Allow anonymous Notes connections: Yes No Check passwords on Notes IDs: Enabled Disabled
 - Server Access:** Access server: users listed in all trusted directories and targetserver/acme1: Not access server: Create databases & templates: Create new replicas: Create master templates: Allowed to use monitors: Not allowed to use monitors: Trusted source:
 - Pass thru Use:** Access this server: Route through: Cause calling: Destinations allowed:

A yellow circle highlights the "Push Only" option in the "Select Keywords" dialog box, which is overlaid on the top window.

10 - Designing a Replication Strategy.

End-To-End Topology



Server Replication Types

Replication Type	Description	Number of required connection documents
Pull-Pull	Each server's Replicator does the work and pulls data from the other, writing changes in its own applications.	1
Pull-Push	The initiating server's Replicator pulls changes from the called server and then pushes data to the called server; only the initiating server's Replicator does the work, writing in both servers.	1
Pull Only	The initiating server's Replicator does the work and pulls data from the called server.	2
Push Only	The initiating server's Replicator does the work and pushes data to the called server.	2

Replication vs. Routing Topologies

- Different mail and replication topologies may be required within the same organization.
- Needs for both mail routing and application replication should be considered to ensure the most optimum topology.
- The same topology may be used for both mail routing and optimum topology.

Considerations for Choosing a Replication Type

General considerations for choosing a replication type include:

- Server load and server availability.
- Connection costs.
- Data security and access rights.
- Replication topology.

How to design a Replication Strategy

Guidelines for designing a replication topology:

- Determine the appropriate topology type based on the size and type of the organization:
 - Hub-and-spoke
 - Peer-to-peer
 - End-to-end
 - Hybrid
- If using hub-and-spoke:
 - Determine the number of hubs and the appropriate system resources for each hub.
 - Determine if clustering the hubs is necessary.
 - Determine which servers will initiate replication.
 - Determine if you will use server groups.

11 - Extending the Lotus Domino Environment

Lotus Domino Standard Services

Service or task	Definition	Description

Internet services:	<ul style="list-style-type: none"> • HTTP • LDAP • POP3 • IMAP 	<ul style="list-style-type: none"> • HyperText Transfer Protocol • Lightweight Direct Access Protocol • Post Office Protocol 3 • Internet Mail Access Protocol <ul style="list-style-type: none"> • Supports the Internet protocol used to transfer files from one computer to another for Web browser access. • Allows connection to and from Internet standard directories. • Supports users running POP standard clients for mail. • Allows clients to retrieve mail from a host mail server also running the protocol. IMAP is similar to POP3 but has additional features.
DECS	Domino Enterprise Connection Services	Allows real-time backend connectivity between Lotus Domino and external systems to support application and application access to non-Lotus Domino information and data.

Lotus Domino Internet Security Mechanism

Security operation	Definition	Description and benefits
SSL	Secure Socket Layer	<p>Security protocol that provides communications privacy and authentication for Lotus Domino server tasks that operate over TCP/IP. SSL offers these security benefits:</p> <ul style="list-style-type: none"> • Data is encrypted to and from clients, so privacy is ensured during transactions. • An encoded message digest accompanies the data and detects any message tampering. • The server certificate accompanies data to assure the client that the server identify is authentic • The client certificate accompanies data to assure the client that the server identity is authentic. • The client certificate accompanies data to assure the server that the client identity is authentic. Client authentication is optional and may not be a requirement for your organization.
S/MIME	Secure Multi-purpose Internet Mail Extensions	<p>A protocol used by clients to sign mail messages and send encrypted mail messages over the Internet to users of mail applications that also support the S/MIME protocol.</p> <p>S/MIME benefits include:</p> <ul style="list-style-type: none"> • Encrypted mail messages cannot be read by unauthorized users while the message is in transit • Electronically signed messages show that the person who signed the message had access to the private key associated with the certificate stored in the signature.
CA	Certificate Authority	<p>A certificate authority (CA), or certifier, is a trusted administration tool that issues and maintains digital certificates. Certificates verify the identity of an individual, a server, or an organization, and allow them to use SSL to communicate and to use S/MIME to exchange mail. Certificates are stamped with the certifier's digital signature, which assures the recipients or the certificate that the bearer or the certificate is the entity named in the certificate.</p>

Scalability Options

Service or task	Description
Clustering	A Lotus Domino cluster is a group of two or more servers that provides users with constant access to data, balances the workload between servers, improves server performance, and maintains performance when you increase the size of the Lotus Domino environment.
Partitions	Enable running multiple instances of the Lotus Domino server on a single computer.

Lotus Domino Clusters

A **Lotus Domino cluster** is a group of two to six servers that:

- Are on a high-speed LAN.
- Are on the same Lotus Domino Named Network.
- Are in the same Lotus Domino domain and share a Lotus Domino Directory.
- Run the TCP/IP network protocol.
- Contain application replicas.
- Use a dedicated network adapter for cluster-to-cluster traffic.

Benefits of Clustering

Benefit	Description
High availability of applications	Automatic redirection of user requests to available servers. This failover capability provides consistent access to critical applications, even if one server is down for maintenance.
Workload	User requests to heavily used servers are redirected to other cluster members.
Scalability	Administrators can: <ul style="list-style-type: none">• Add cluster members.• Add application replicas.• Reallocate users across the cluster.
Data synchronization	Cluster replication maintains current data across replicas.
Ease of upgrade and migration	Software and hardware upgrades on one cluster member do not affect other members.
System backup	Cluster member can act as server backup for critical data. Clustering does not take the place of backup. At least one server in the cluster must be backed up to tape, as well as other servers that contain unique files (such as logs).

Lotus Domino Partitions

Partitions:

- Are available with the Lotus Domino Enterprise server
- Are supported on all Lotus Domino supported operating system platforms
- Share Lotus Domino executables
- Have unique Lotus Domino data directories and initialization files (Notes.ini)
- Can be clustered.

Benefits of Partitions

Benefit	Description
Reduce hardware expenses	Run multiple Lotus Domino servers on a single computer.
Minimize the number of administered systems	Easier to administer a single server than multiple servers
Maximize usage of high-powered systems	More efficient use of hardware. For example, you can purchase a single, more powerful computer and run multiple Lotus Domino servers on the single machine.
Are very effective in different domains	<ul style="list-style-type: none"> • Separate servers for individual customers. • Support multiple Web sites.
Add scalability	Running partitioned servers from the same domain on a multi-processor computer can improve performance because the computer simultaneously runs certain processes.

Lotus Sametime

The Lotus Sametime server supports several types of real-time communication:

- Users can participate in instant chat sessions with other online participants through the exchange of text as well as using audio and video-based information in real time
- Users can transfer files in an instant or scheduled meeting.
- Users can collaborate in real-time meetings using the Web Conferencing interface with advanced organizational collaboration that includes instant polls and reach out to a community of experts.
- Users can participate in broadcast style meetings where many users can tune to a meeting and watch it without interaction.
- A community of users to collaborate in real time through presence and instant messaging server applications.

Lotus Connections

Lotus Connections is a social networking software application that enables organizations to collaborate with their employees, partners, and clients.

Service	Description
Home page	A portal that provides a customizable view of the social network. It consists of widgets of the other five services. The placement of the widgets are customizable. The home page also has an advanced search box that enables users to locate people or information across the social network.
Profiles	It contains a person's name, photo, address, area of expertise, department, and reporting structure. Profiles help to locate people in an organization based on their expertise level, department, or interests.
Communities	A collaborative space that enable people with common interests to share information or interact with one another. Communities can be integrated with Lotus Sametime, which allows community members to chat with one another and also save their chat transcripts.
Blogs	A blogging service that helps people share information and receive feedback.

Dogear	A platform to discover, save, and share bookmarks enabled by users with similar interests. Notifications can also be sent and received about new bookmarks.
Activities	An activity management tool that helps users organize their tasks. The tasks can be categorized into various sections such as, to do lists, meeting agendas, or logistics.

Lotus Quickr

Lotus Quickr is a team collaboration software that enables team members to share content.

Service	Description
Content library	A version control database of team documents. Team members can check in or check out documents or media files from the content library.
Lotus Quickr + Enterprise Content Management (ECM)	Lotus Quickr and ECM can be combined to provide enterprise level collaboration. It enables the content to be accessible across an organization from tools such as IBM Lotus Notes or Microsoft® Office.
Team places	Enables users to create specific work space for projects or teams. Collaboration tools such as blogs, wikis, discussion forums, or team calendars can be included in team places.
Connectors	Enables users to collaborate and access content from Lotus Quickr without switching applications. For example, a Lotus Sametime user can send or receive Lotus Quickr links from a chat application.
Templates	Pre-built team places that provide immediate solutions and support for some common business processes.
Personal file sharing	A personal content database where users can store and share files.

12 - Analyzing a Deployment Plan

What is Eclipse?

- A platform designed for building IDEs that provide template- driven and CSS-based customization.
- An open-source Java platform that has become the foundation for RCP development.
- The environment that Lotus Notes 8.5 is based on.

Client Installation Types

Available client options:

- Notes Client (selected by default)
- Sametime(integrated) (selected by default)
- IBM Lotus Domino Designer
- Lotus Domino Administrator

- Composite Application Editor
- IBM Lotus Symphony

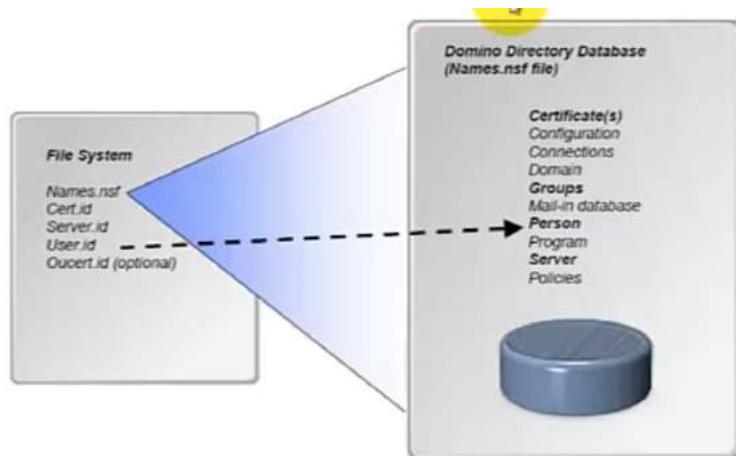
What is Lotus Expeditor?

- A client platform designed for end-to-end smart client application solutions.
- Extends Lotus Notes 8.5 by providing application installation and management services.
- Builds clients on Eclipse and supports running them on multiple operating systems.

Workstation Sharing Considerations

- Operating system must support multiple user profiles.
- Cannot share Lotus Domino Designer or Lotus Domino Administrator clients

Components Created during First Server Setup File



The Domino Directory

- Most important database in the Lotus Domino environment.
- Stores information about all Lotus Domino resources.
- All Domino servers in a domain contain a replica of the Domino Directory.

Replicas of the Domino Directory

- Replicas enable collaboration between users on different servers.
- Replication synchronizes changes on replicas to ensure all servers have updated information.

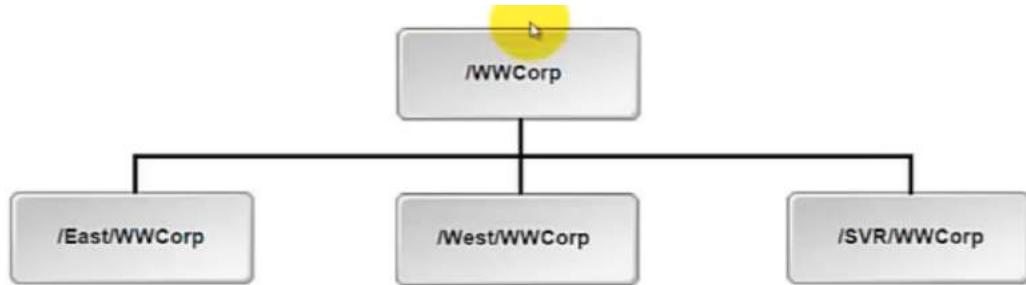
Comparing Domains and Organizations

Component	Description
Domino domain	The collection of Domino servers and users that share the same Domino Directory
Domino organization	Defined by the certifier that stamps the IDs of users, servers, and other certifiers Trust relationship within the organization lets users and servers, communicate and share data. Organizational certifier provides security and uniformity in naming of users and servers. Certifier name is part of the hierarchical name of all users and servers in the organization

Purposes of Organizational Units

- Management by region or division.
- Separation of servers from users.
- Unique names for users who have the same common name.

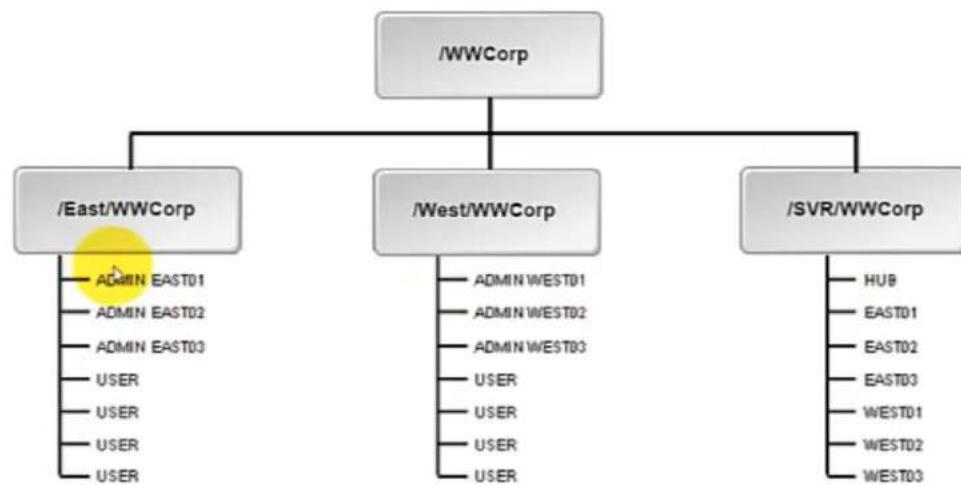
Worldwide Corporation's Lotus Domino Organization Hierarchy



Alternatives to Organizational Units

- Use Group documents to manage subsets of users.
- Consider keeping servers and users in the same container.
- Differentiating between users with the same names:
 - Use the middle initial as part of the common name.
 - Include a unique OU during user registration.

Organizational Hierarchy



Descendants of the Organization Certifier

When only one organization hierarchy exists, all names are descendants of the organization certifier.

The certifier IDs stamp server, user, and other certifier IDs with their certificates:

- The /WWCorp organization certifier stamps one entity, the user Doctor Notes.
- The /WWCorp certifier stamps the following OU certifiers, which will stamp the IDs for other users and servers:
 - /SVR
 - /East
 - /West

Organization Security

- All servers and users under /WWCorp can authenticate with each other.
- Access is allowed unless another security measure exists.

Organization Certifier ID Security

- The certifier ID file is the most important ID file in the organization.
- Cert.id can and should be moved from Domino\data subdirectory to a secure place.

Authentication between organizations

- When two organization certifiers exist, the infrastructures cannot communicate without administrative intervention.
- Use cross-certification to establish trust between Lotus Domino organizations.

Country Codes

- For multinational organizations, provides an additional hierarchical level.
- Multiple organization certifiers required (one for each country code to be used).
- Does not replace the organization component.

Server Audience Types

Server Audience	Description
-----------------	-------------

Web browsers	For Web browsers such as Microsoft Internet Explorer Mozilla, Firefox, and Netscape Navigator, to access data on the server.
Internet mail packages	For Internet mail clients using the following protocols to access mail on the server: <ul style="list-style-type: none"> • POP3 (Post Office Protocol 3) • IMAP (Internet Message Access Protocol) • SMTP (Simple Mail Transfer Protocol)
Directory services	For clients using LDAP (Lightweight Directory Access Protocol),

The Lotus Domino Server Log

- Log.nsf reports all server activity and provides detailed information about databases and users on the server:
 - Can be configured to report the desired level of detail about server activity.
 - Is created automatically when a server is started for the first time.

Administrator Group Security Options

- Prohibit anonymous access:
 - Adds an ACL entry called Anonymous to all databases
 - Gives it the No Access ACL setting
- LocalDomainAdmins:
 - Creates a group that gives some or all administrators Manager access to all databases.
 - The first server's administrator is added to LocalDomainAdmins during first server setup.
 - Other administrators can be added to the group later.

The Client Configuration Program

- Connects to the specified server, which must contain a Person document for the user.
- Downloads the ID file if the file is stored in the user's Person document.
- Creates the user's local Contacts file.
- Configures bookmarks for the user's mail and Contacts files, and other databases specified in setup settings of policies.
- Creates documents in the Contacts file.

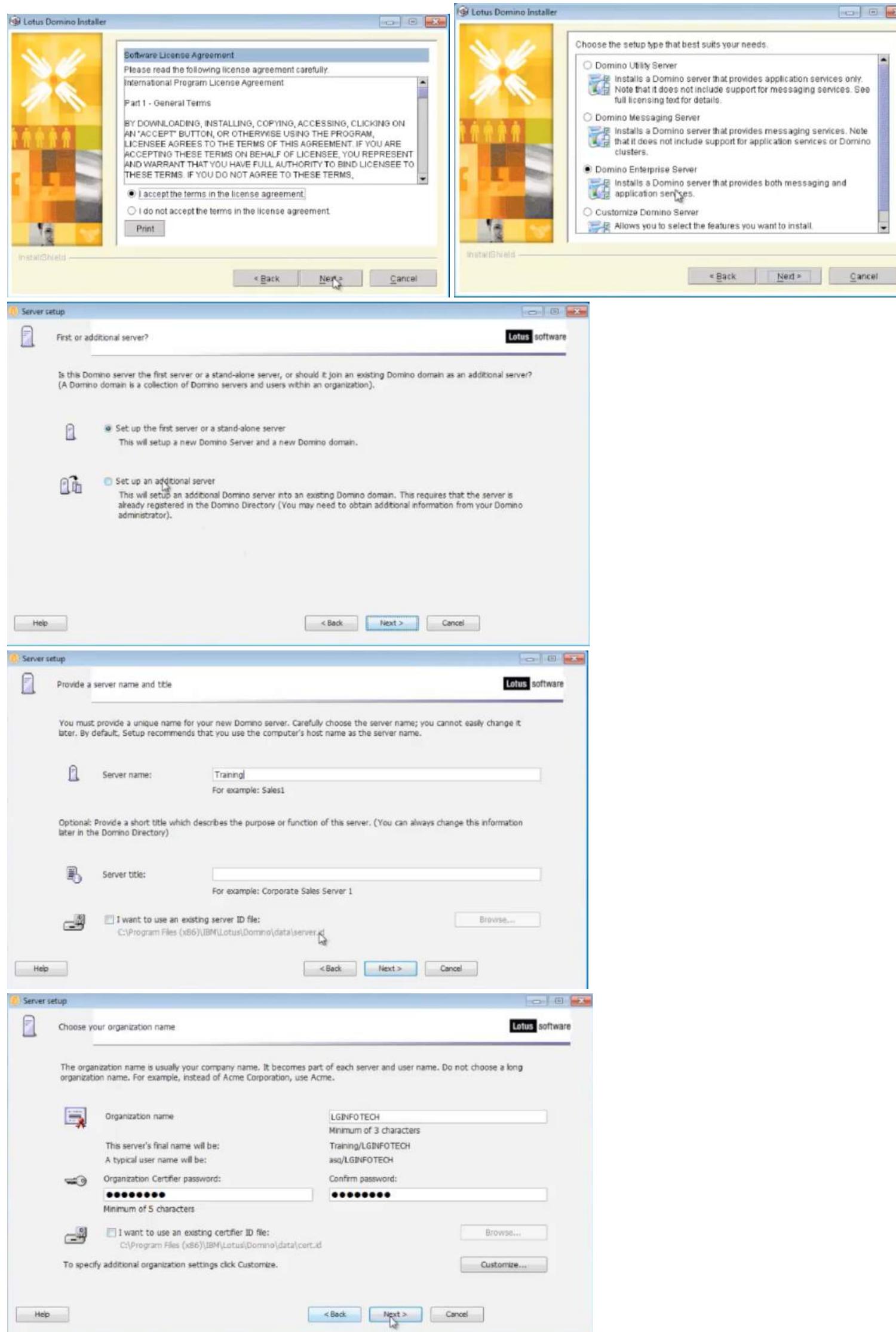
Access in the Domino Directory

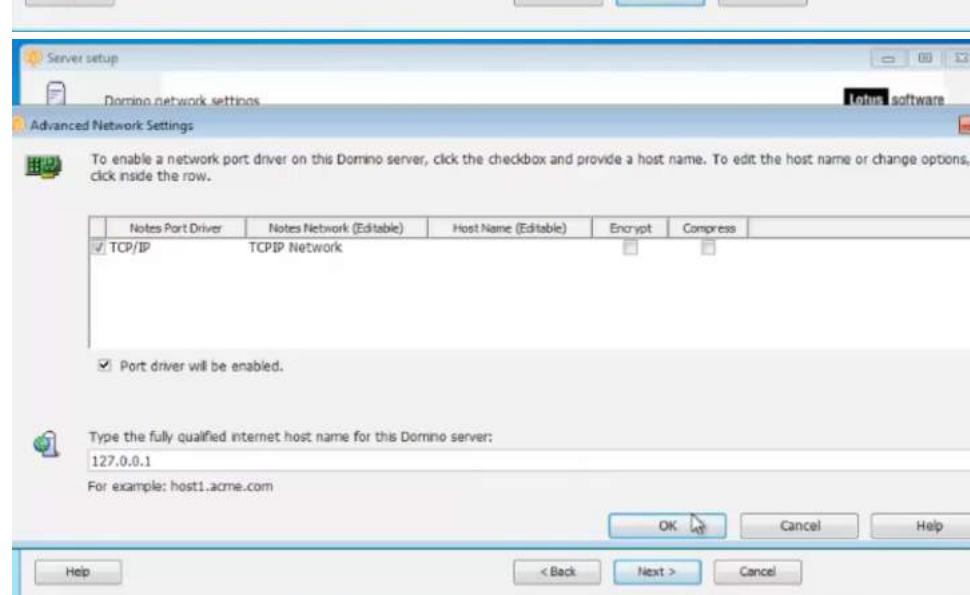
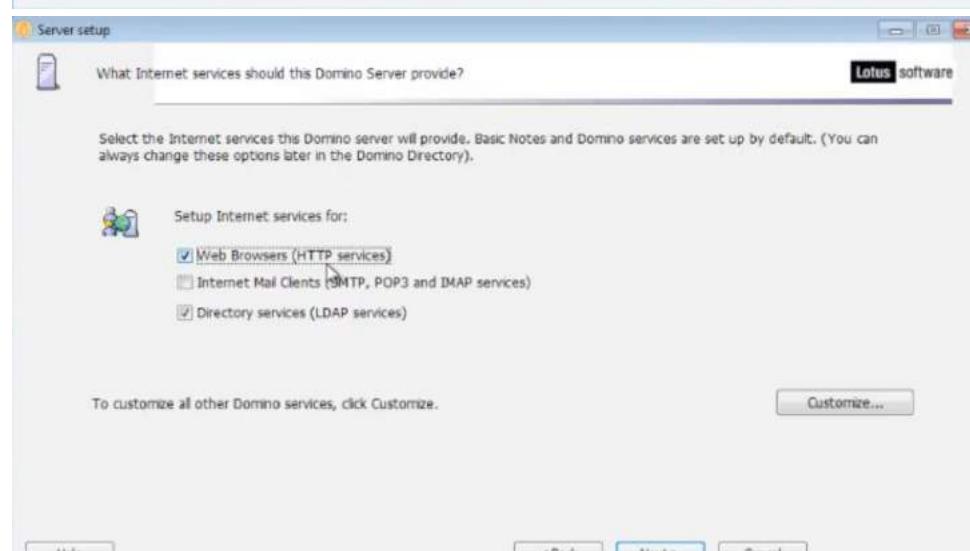
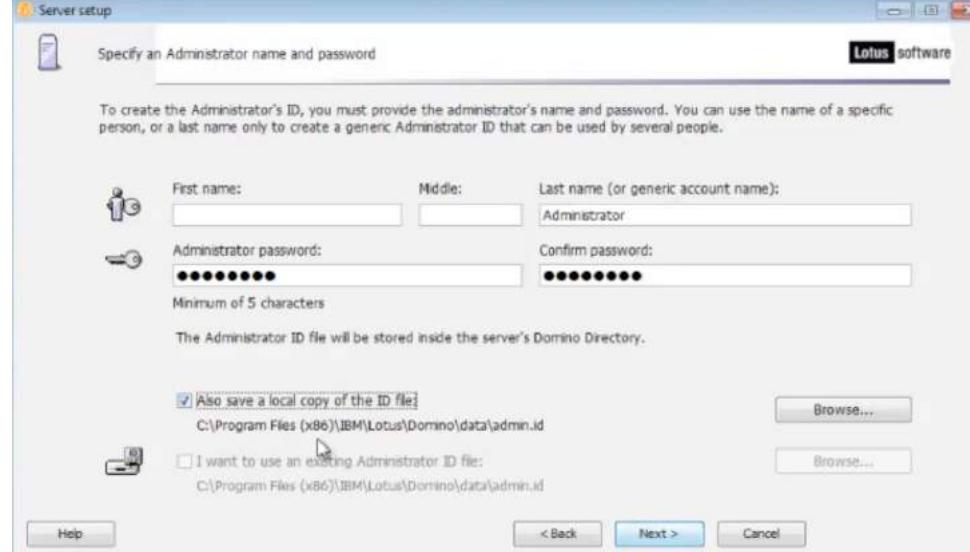
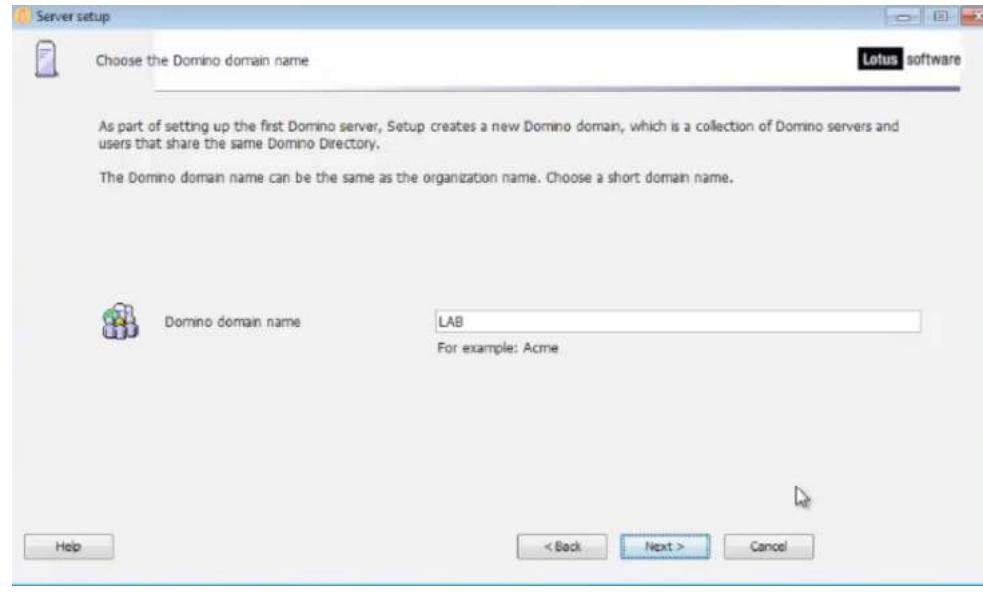
- Having Manager access to the IBM Lotus Domino Directory ACL enables editing the ACL.
- To create and edit documents in the Domino Directory, administrators must also be assigned the appropriate ACL role(s).
- Worldwide Corporation will assign all ACL roles to the administrators and to servers.

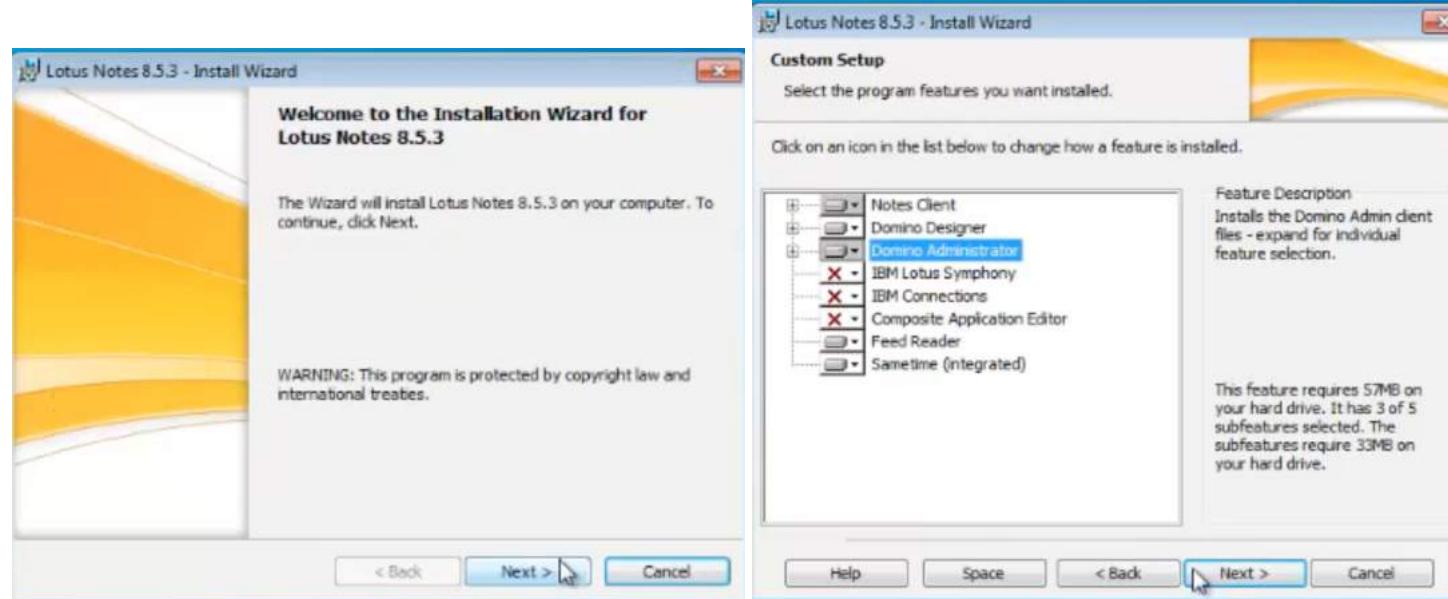
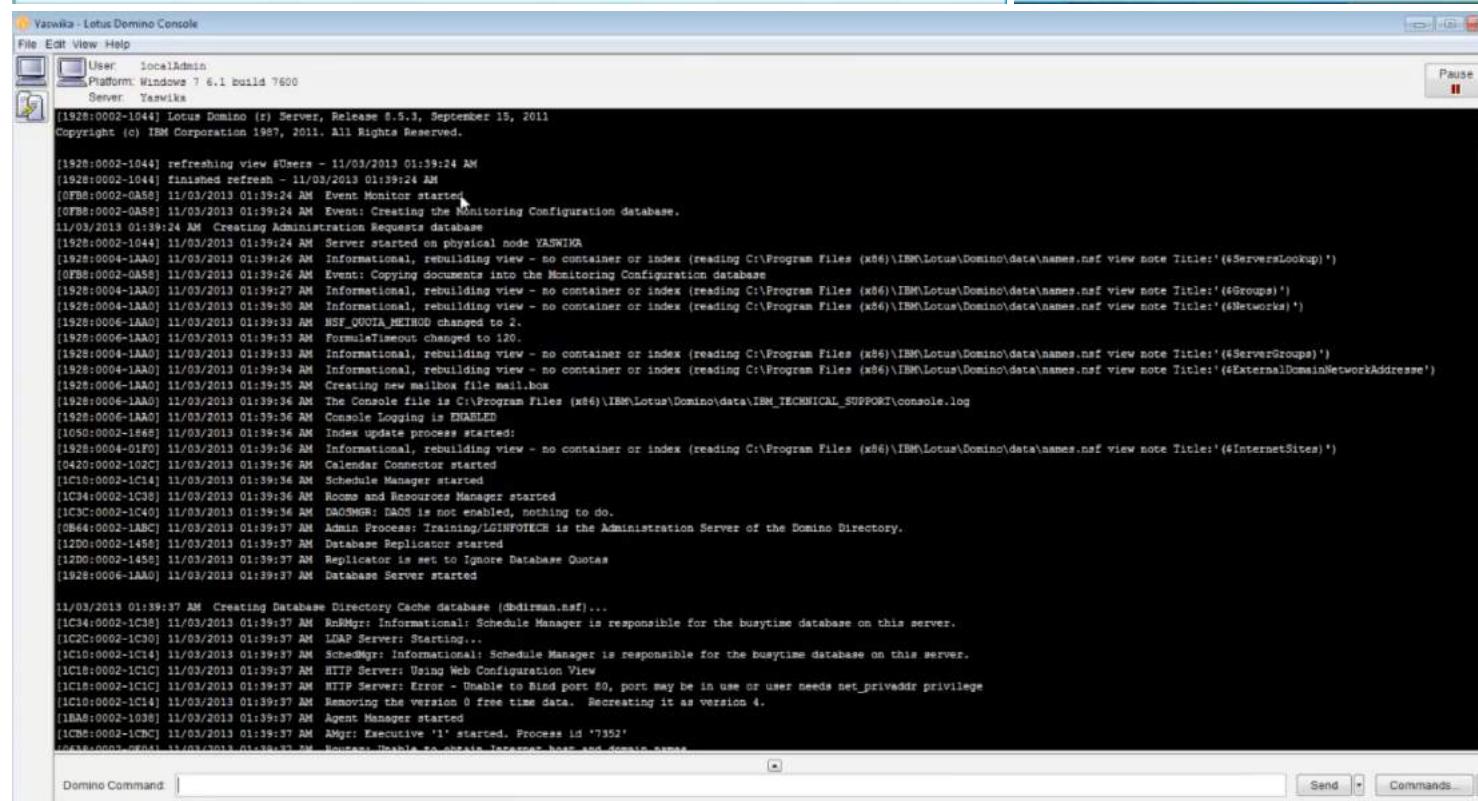
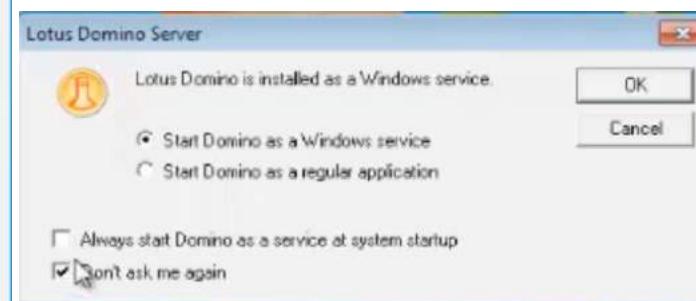
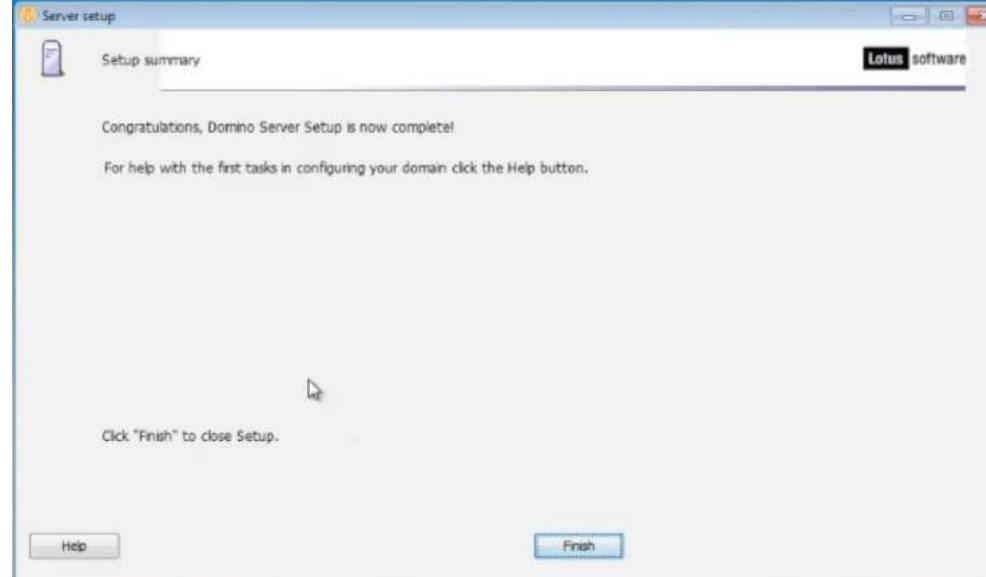
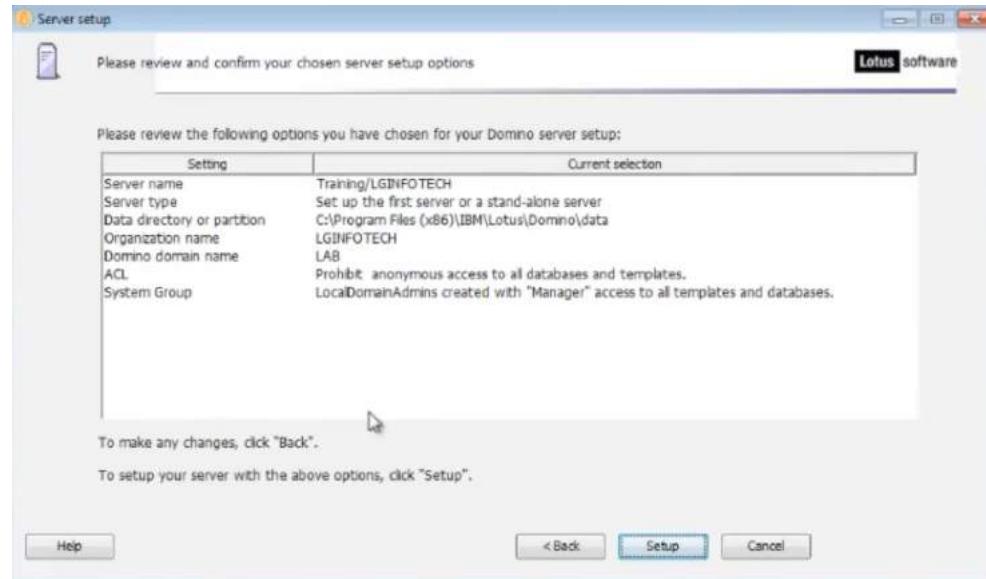
Privileges and the LocalDomainAdmins Group

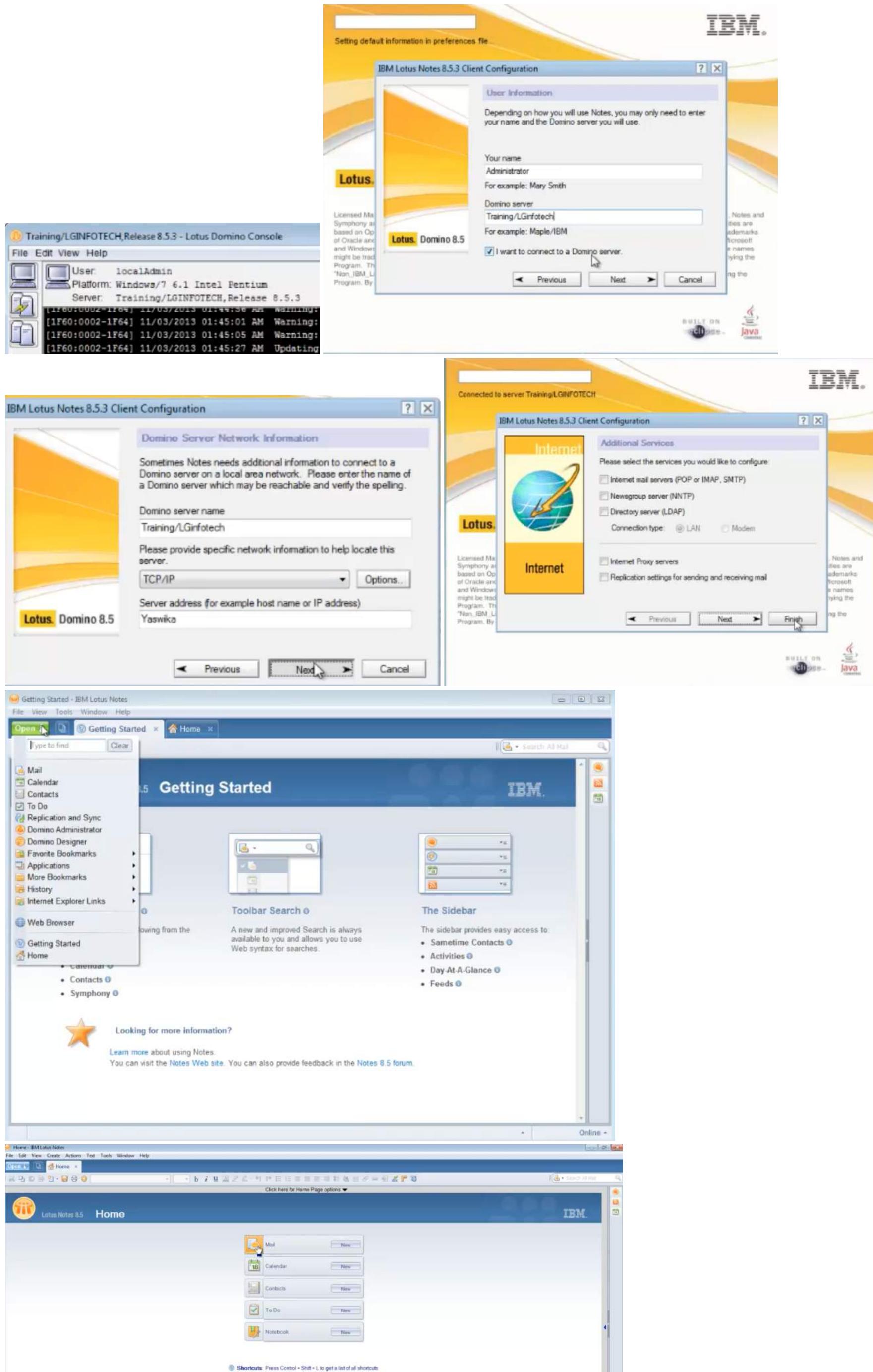
- During first server setup, if LocalDomainAdmins is added and assigned Manager access in the ACL of every database, any administrator listed in LocalDomainAdmins can change the ACL of any database, including the Domino Directory.
- LocalDomainAdmins is not automatically assigned any roles:
 - The roles in the Domino Directory specify who can create and edit documents.
 - Without the roles, an administrator cannot perform any registration tasks, because the registration program creates documents.
 - Managers can edit the ACL, so members of LocalDomainAdmins could assign the appropriate ACL roles to themselves.

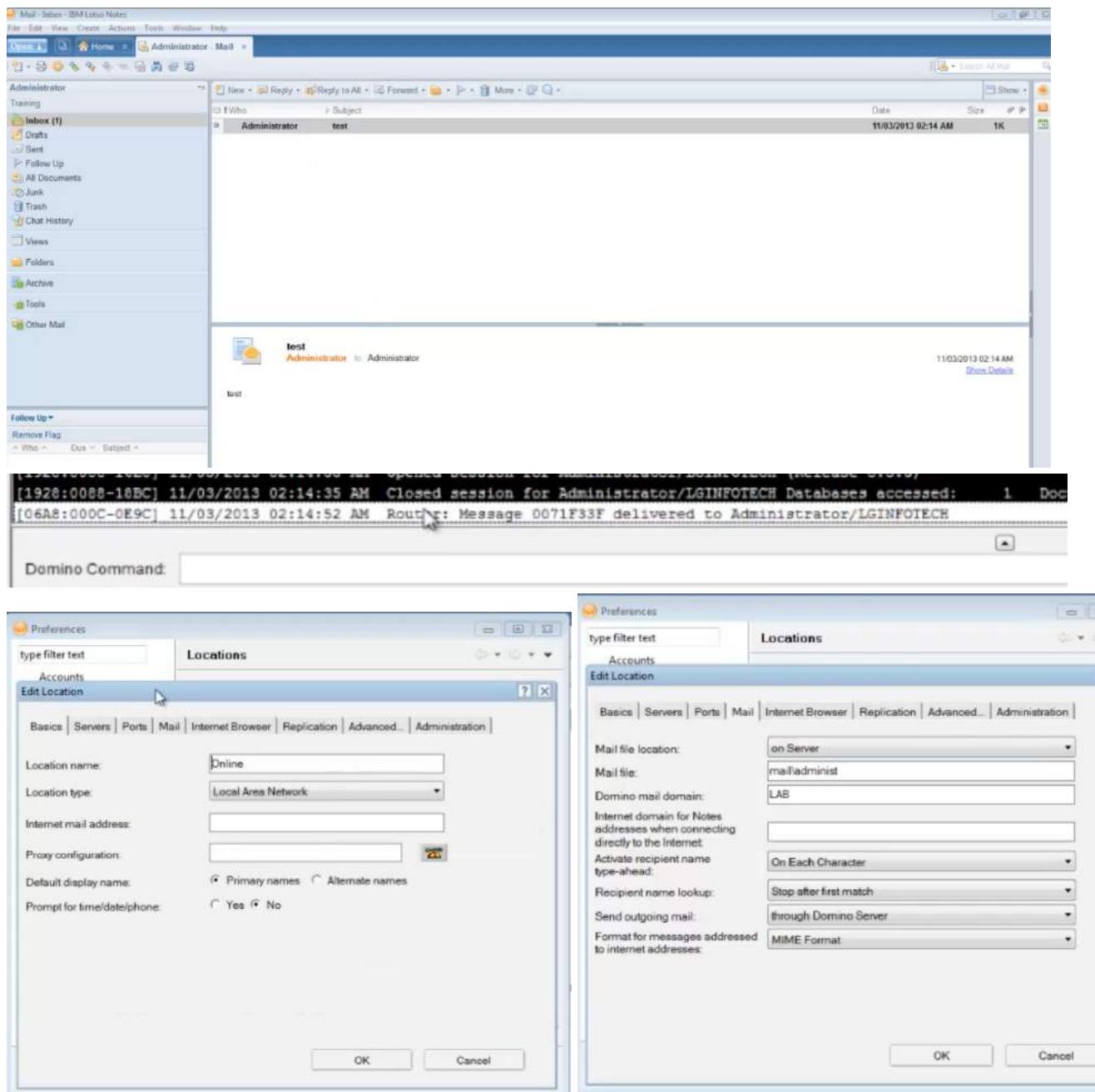
13 & 14 - Installing and configuring a Lotus Domino Server











15 & 16 - Adding IBM Lotus Domino Servers

- Register servers
- Configure and start additional Lotus Domino Server

The Server Registration Process

- Existing server and workstation required
- Server registration creates:
 - A Server document in the Domino Directory
 - An ID file stored as an attachment in the Server document or as a file at the operating system level.

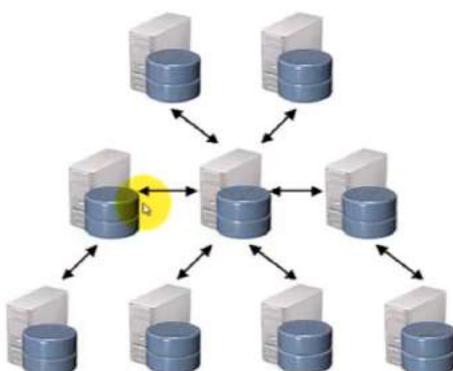
Domino Directory Access for Registering Servers

- ACL access:
 - Author access or higher
 - The Create documents privilege
 - The ServerCreator role
- Certifier ID and password access

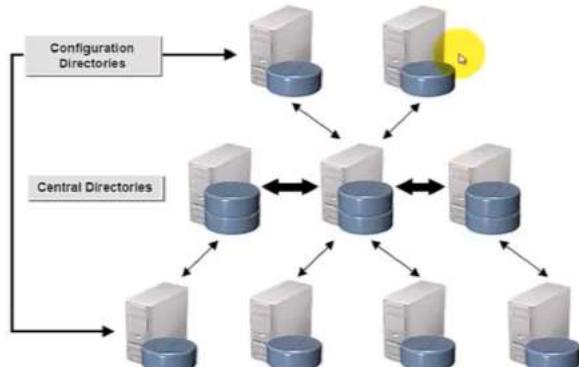
Server ID File Storage Options

- Storing the ID file in the Domino Directory of an existing server:
- Allows the new server to detach the ID file from the Server document of the existing server's Domino Directory.
- Requires a password for the attached server ID. The result is that after the server is configured, it cannot be restarted from the Domino Administrator remotely.
- Storing the ID file in the file system requires that the additional server machine has access to the ID file locally or on the network.

Standard Directory Structure



Central Directory Structure

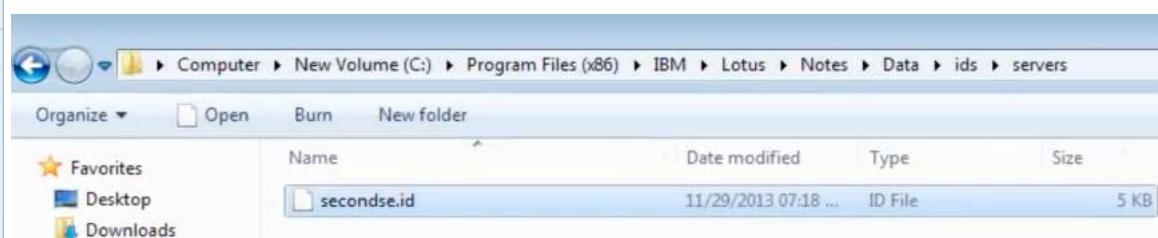
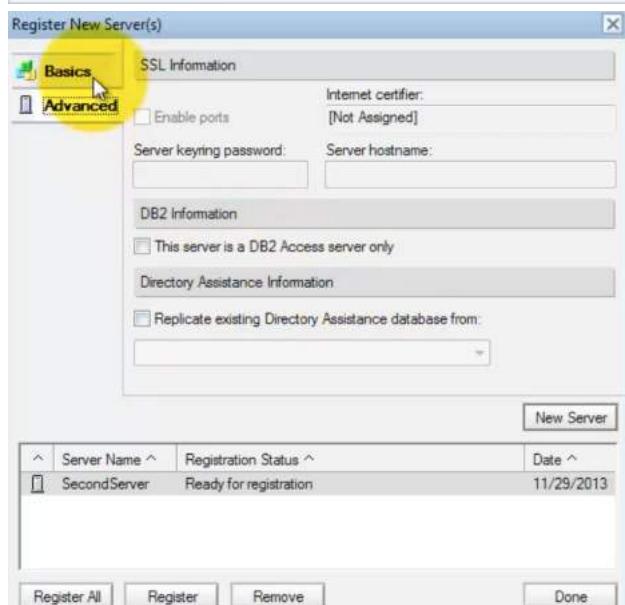
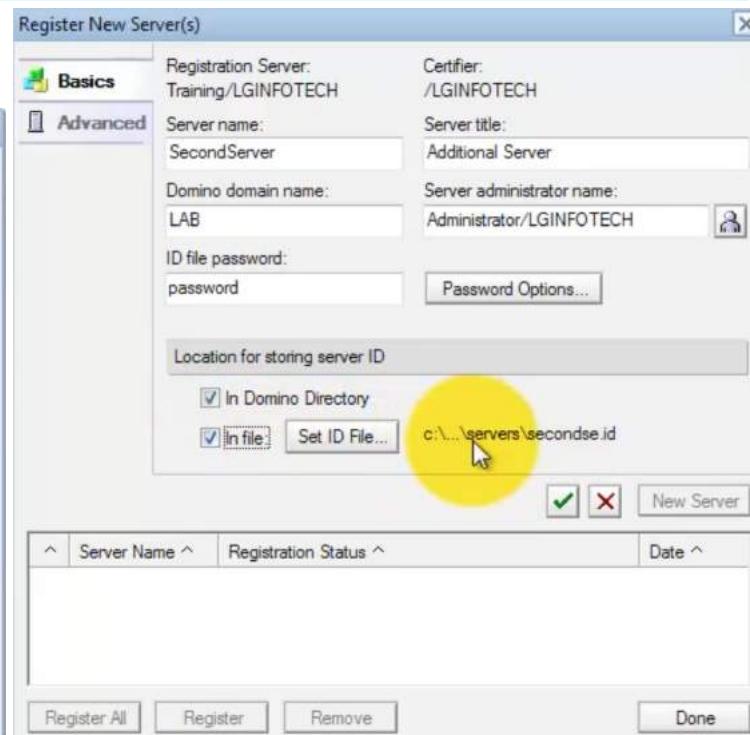
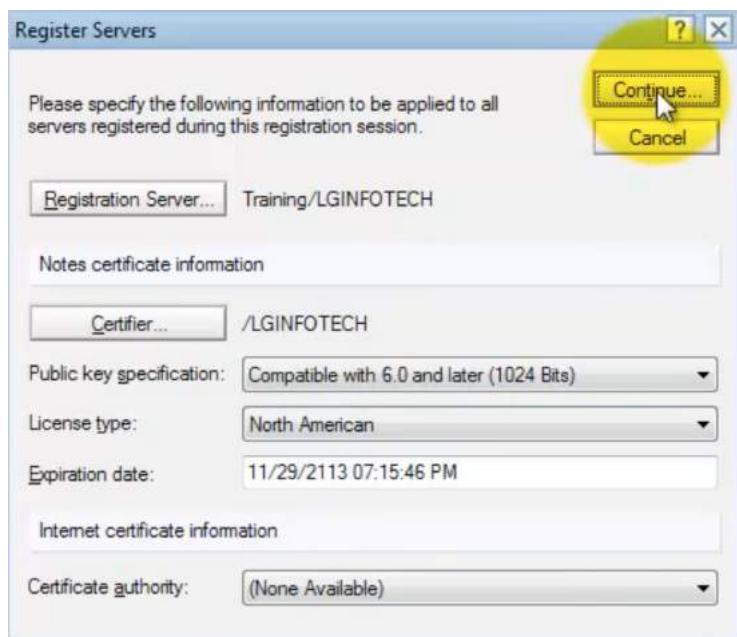
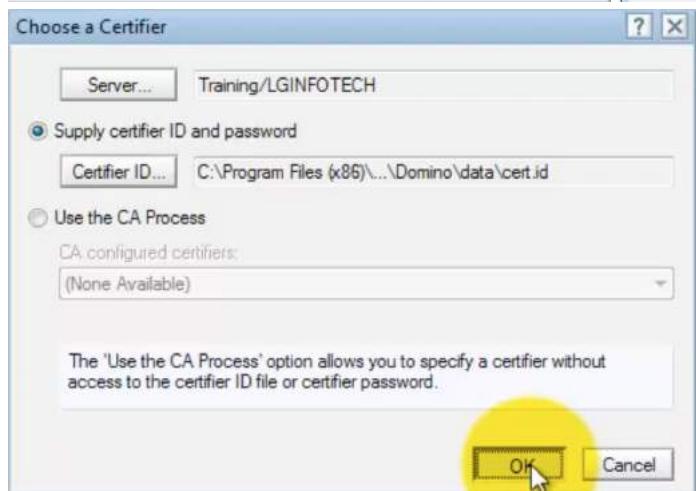


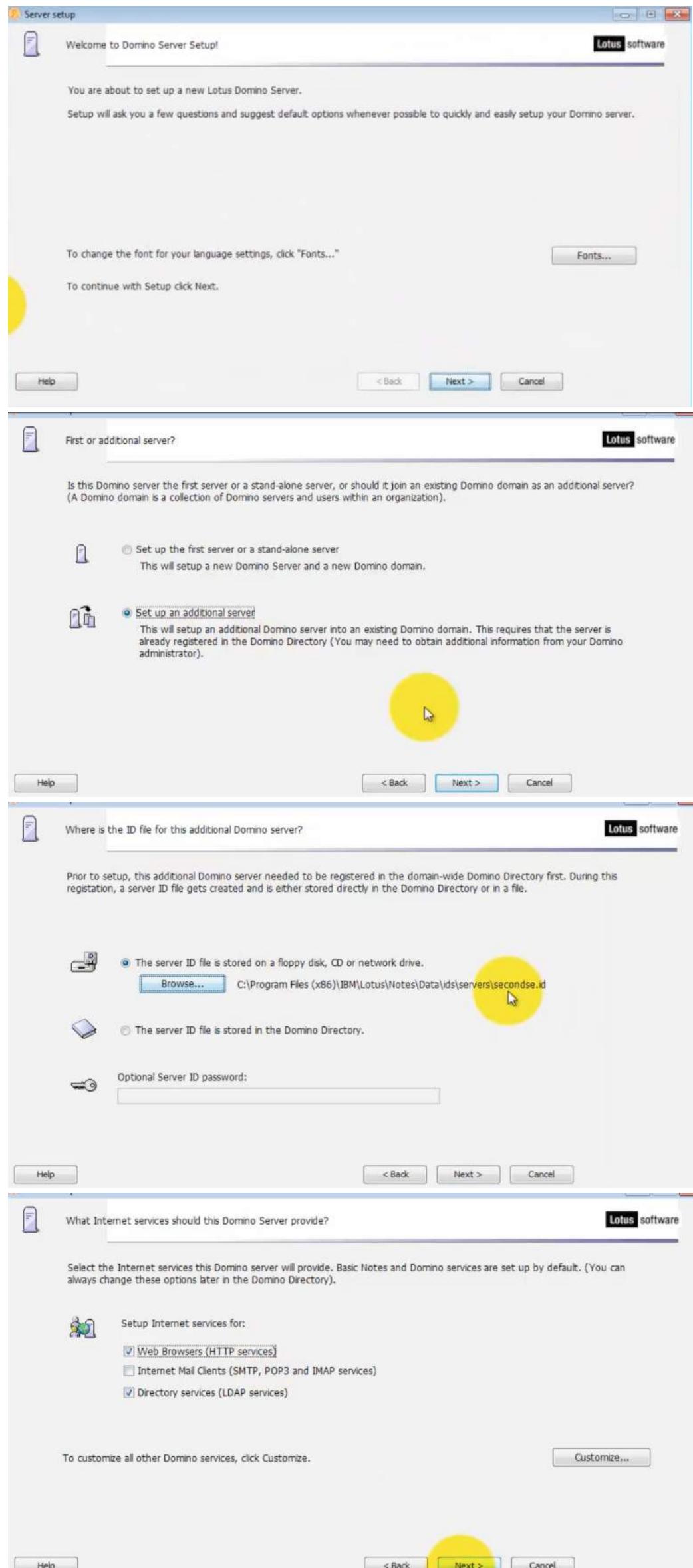
Clearing the Server ID Password

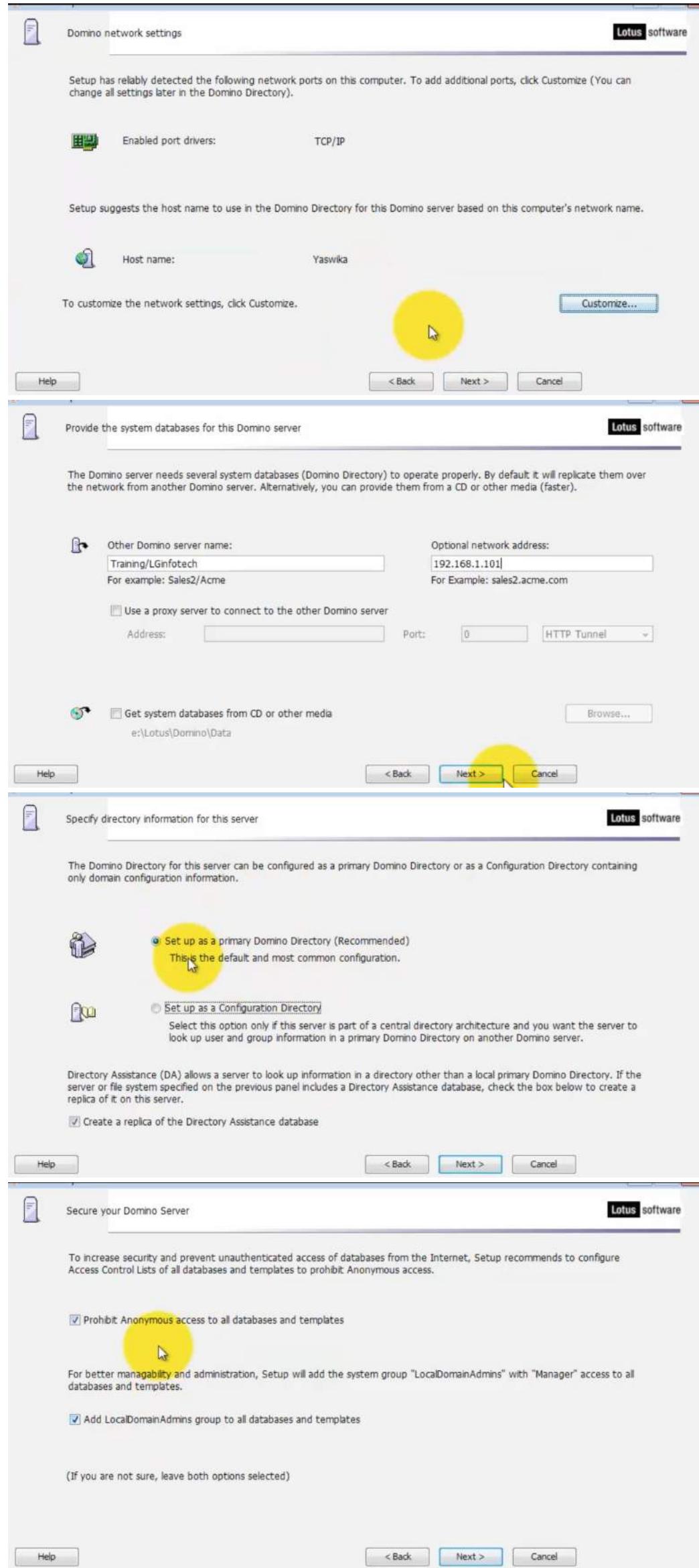
- Requires local access to the ID file
- Two approaches:
 - In Domino Administrator, click **Configuration -> Certification -> ID Properties**.
 - Run nlnotes.exe from a Windows server, then click **File -> Security -> User Security**.

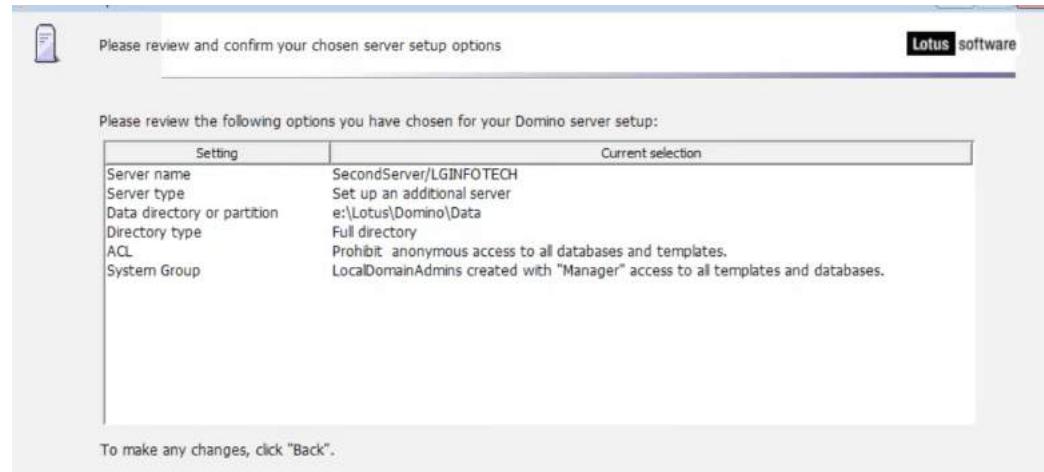
The image displays four windows illustrating the process of clearing the Server ID password:

- Domino Administrator:** Shows the server structure. The "Server" node is selected.
- Choose ID File to Examine:** A file selection dialog showing files in the "data" folder, with "server.id" selected.
- Change Password:** A dialog box with fields for "Enter new password" and "Re-enter new password". The "Encryption Strength" dropdown is set to "64 bit RC2". The "No Password" button is highlighted with a yellow circle.
- ID Properties:** A dialog box showing "Security Basics" for the "Training/LGINFOTECH" server. The "ID type" is set to "Hierarchical User or Server". The "Change Password..." button is highlighted with a yellow circle.



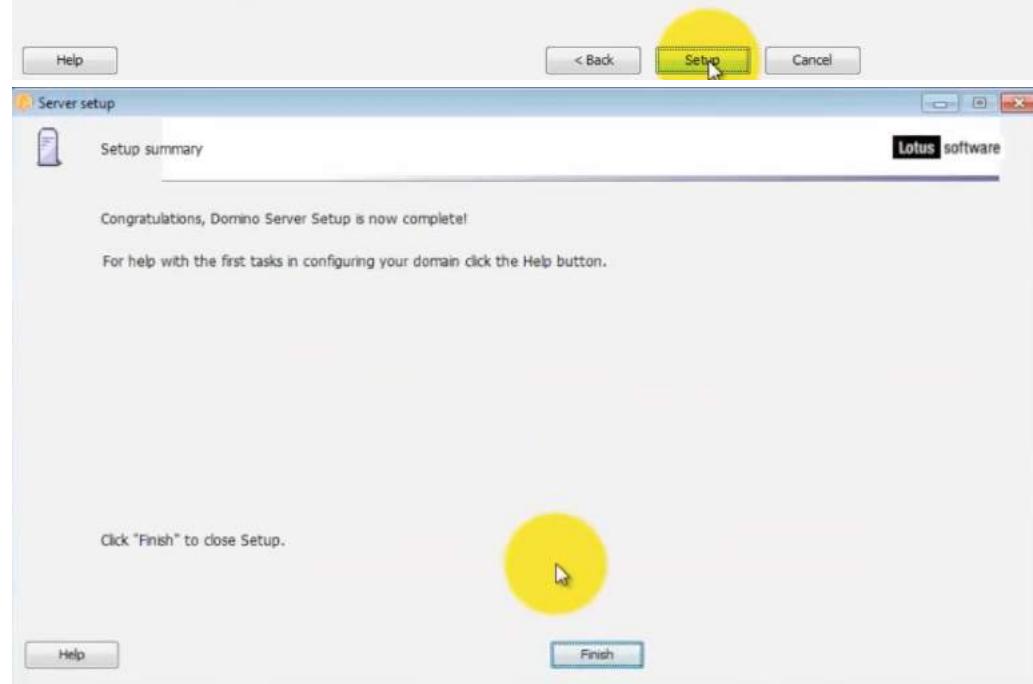






To make any changes, click "Back".

To setup your server with the above options, click "Setup".



17 - Assigning Roles to Administrators and Servers

Title	Filepath	Physical Path	File Format	Logical Size	Physical Size
Administration Request admin4.nsf	C:\Program Files (x86)\IBM\Lotus\domino\etc\ddirn.nsf	C:\Program Files (x86) R6 (43.0)	2,359,296	2	2,359,296
Java AgentRunner agentrunner.nsf	C:\Program Files (x86) R5 (41.0)	C:\Program Files (x86) R5 (41.0)	393,216	1	393,216
Local free time info busystime.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	327,680	1	327,680
Catalog (8)	catalog.nsf	C:\Program Files (x86) R6 (43.0)	1,843,200	1	1,843,200
LAB's Certification Log certlog.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	393,216	1	393,216
Server Certificate Admin certsrv.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	1,253,376	1	1,253,376
CPP FreeBusy WebServ cppfbws.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	524,288	1	524,288
cppfbws	cppfbws.nsf	C:\Program Files (x86) R6 (43.0)	458,752	1	458,752
Domino Directory Cache dbdirman.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	995,328	1	995,328
Domino Domain Monitor ddmr.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	5,505,024	5	5,505,024
Offline Services doladmin.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	688,128	1	688,128
DPI (Domino Portal Int) dpiclg.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	838,656	1	838,656
Monitoring Configuration events4.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	30,670,848	30	30,670,848
Homepage (8.5)	homepage.nsf	C:\Program Files (x86) R6 (43.0)	393,216	1	393,216
Lotus Notes/Domino Fa Indfr.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	2,621,440	2	2,621,440
Lotus Notes/Domino Sn Indstr.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	774,144	1	774,144
Training's Log log.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	1,867,776	1	1,867,776
LAB's Directory labdirman.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	17,035,360	17	17,035,360
Sample Web Agent - Re pwdrwsetsampl	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	393,216	1	393,216
Reports for Training/LGI reports.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	884,736	1	884,736
Domino LDAP Schema schema.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	2,883,584	2	2,883,584
Domino Web Administrator webadmin.nsf	C:\Program Files (x86) R6 (43.0)	C:\Program Files (x86) R6 (43.0)	8,126,464	8	8,126,464

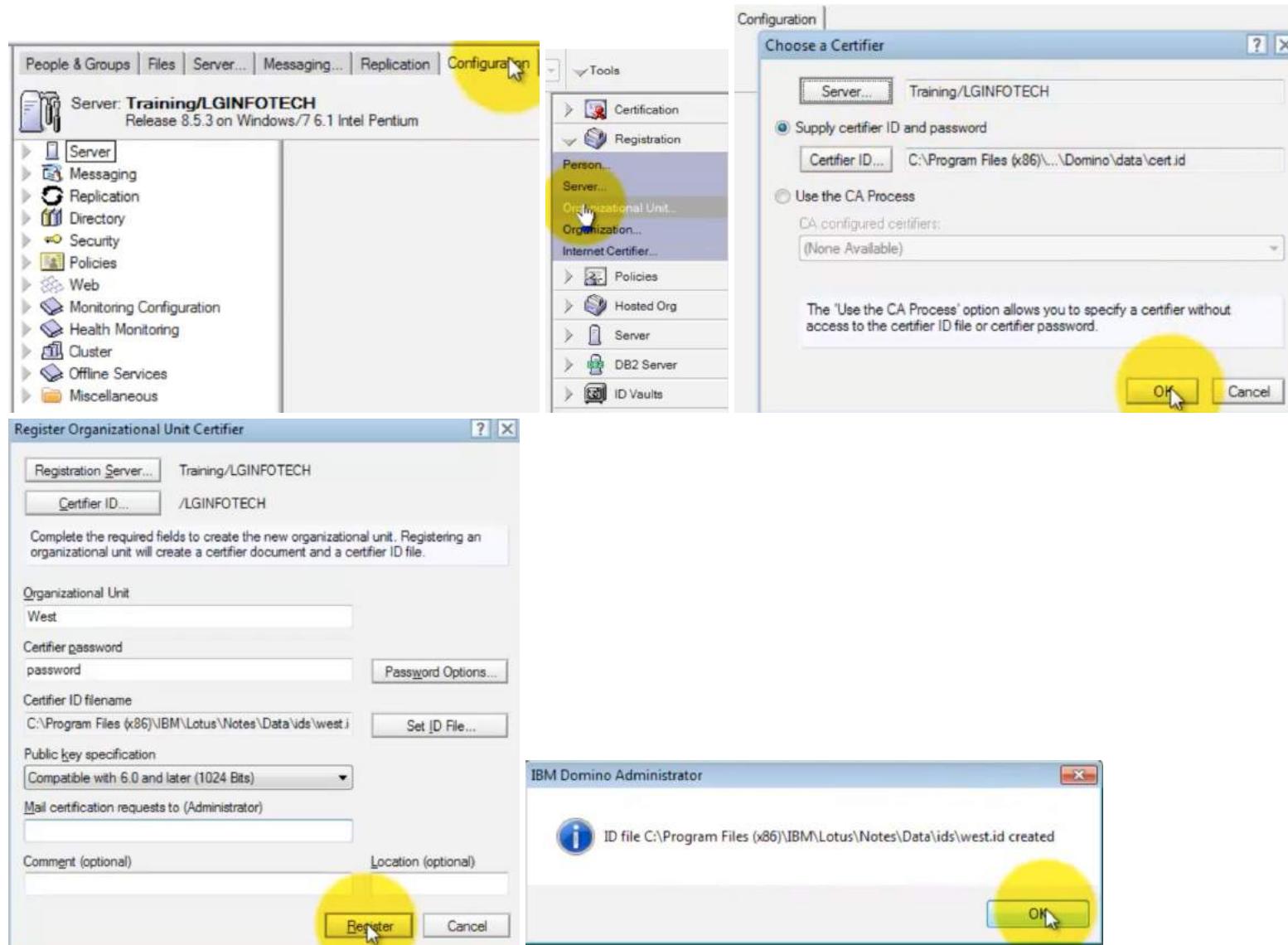
18 - Creating an Organizational Unit Certifier

Certification Log

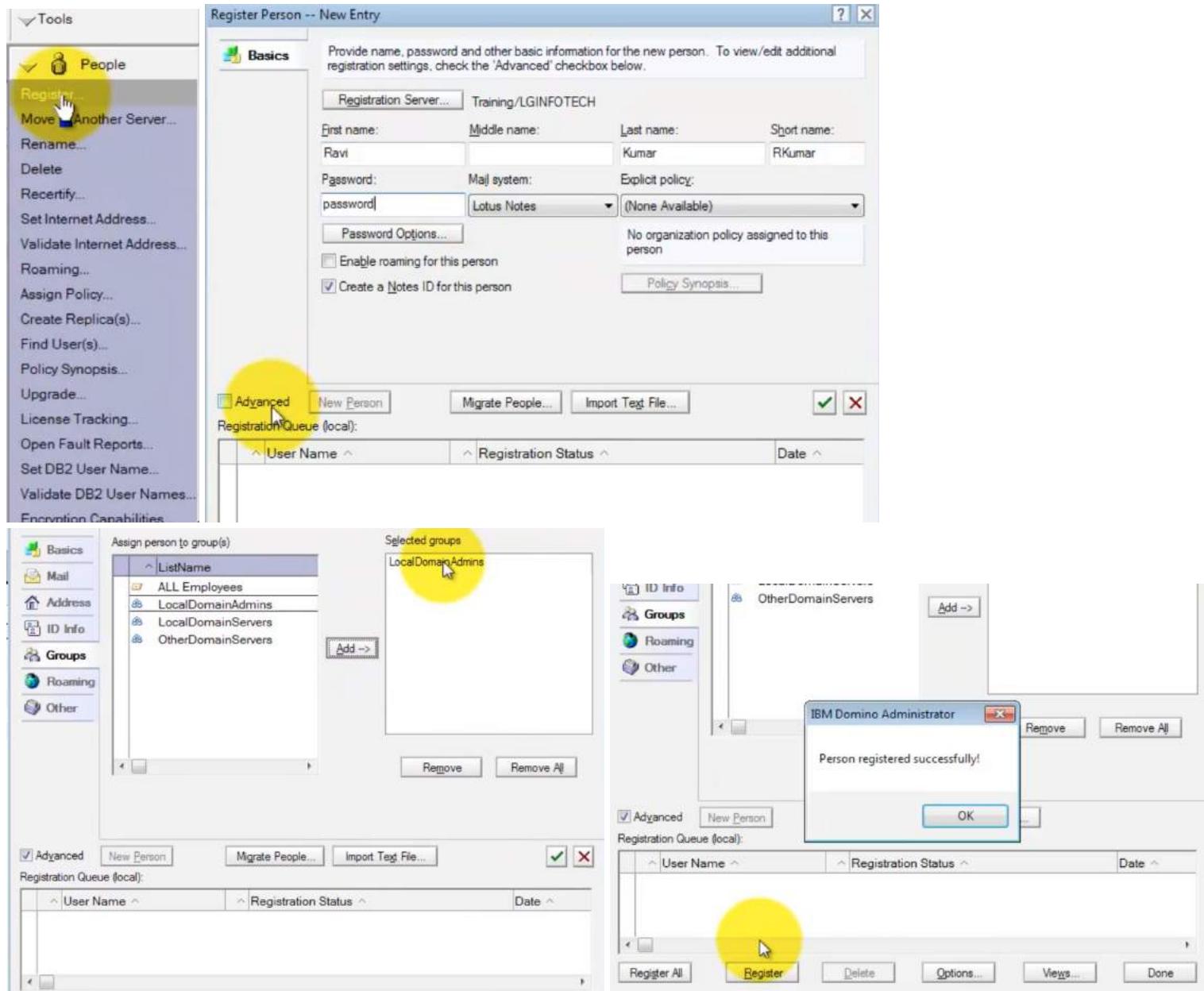
- Must be named Certlog.nsf
- Maintains a record of each use of a certifier to register users or other certifiers:
 - Name, license type, and ID number for the registered user, server, or certifier
 - Date of certification and expiration
 - Name, license type, and ID number of the certifier ID used to certify the new ID

User Registration

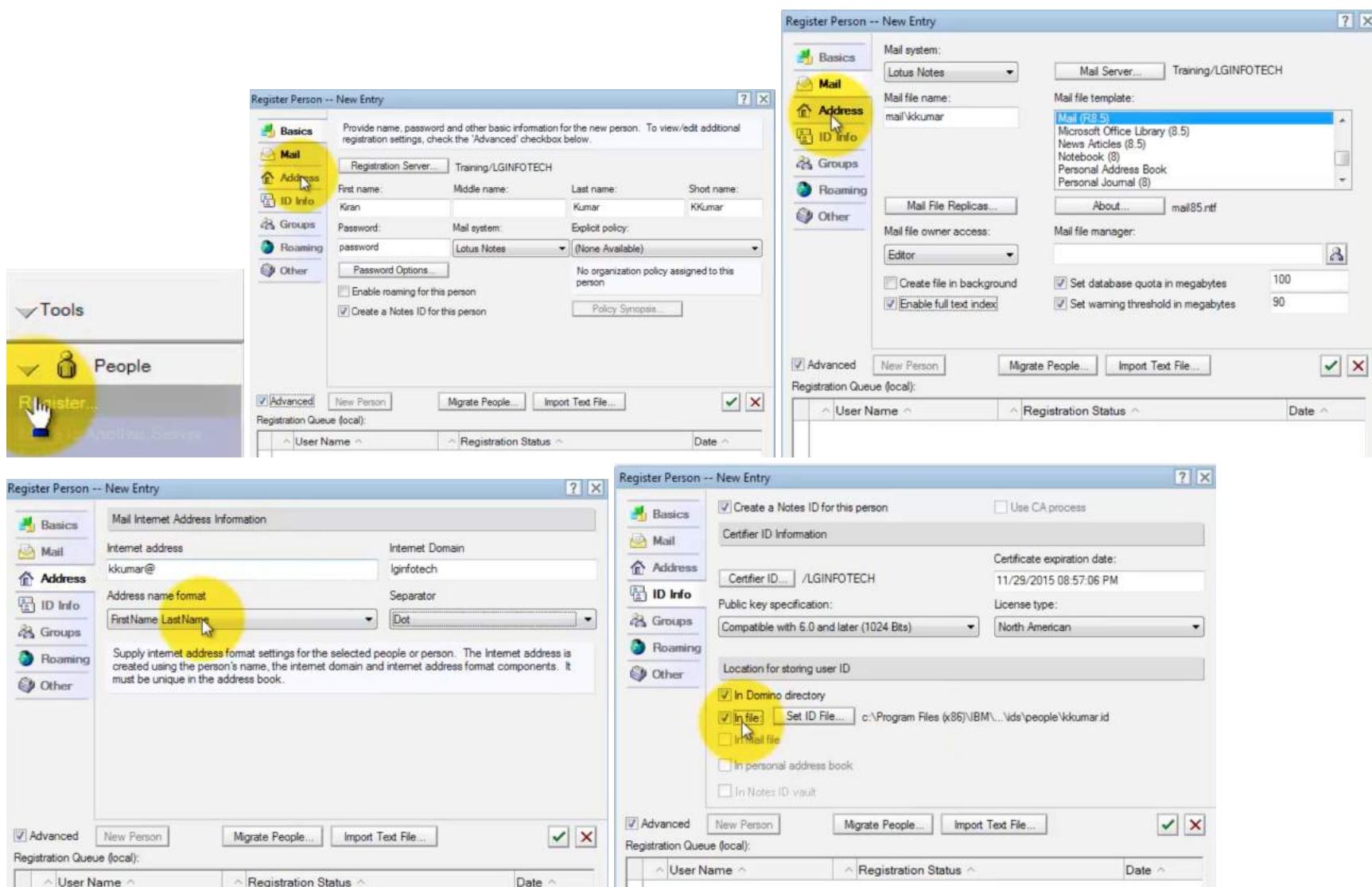
- One at a time by using the Registration dialog box
- Multiple users simultaneously by using a text file
 - User names
 - Other information



19 - Registering New Administrators



20 - Registering Users from a file



Register Person -- New Entry

Assign person to group(s)

- ListName**
- Selected groups**

Internet address: `kkumar@lginfotech` | **Internet Domain**: `lginfotech.com`

Address name format: `FirstName LastName` | **Separator**: `Dot`

Registration Queue (local):

User Name	Registration Status	Date
Kumar_Kiran	Ready for registration	11/29/2013

Other

must be unique in the address book.

IBM Domino Administrator

Person registered successfully!

LAB Domain - Training/LGINFOTECH

Server: Training/LGINFOTECH
Release 8.5.3 on Windows/7 6.1 Intel Pentium

Domino Directories

- LABS Directory**
- People**
- Groups**
- Mail-In Databases and R**
- Policies**
- Dynamic Policies**
- by Person/Group**
- by Category**
- Settings**
- Certificates**
- Alt Language Info**
- Deny Access Groups**

Add Person | **Edit Person** | **Delete Person** | **Copy**

Name: Administrator
Telephone:
Name: Kumar_Kiran

userinfo - Notepad

File Edit Format View Help

```
Alexis;;;;password1
Alexis1;;;;password1
Alexis2;;;;password1
Alexis3;;;;password1
Alexis4;;;;password1
Alexis5;;;;password1
```

Basics

Provide name, password and other basic information for the new person. To view/edit additional registration settings, check the 'Advanced' checkbox below.

Registration Server...: Training/LGINFOTECH

First name: | **Middle name:** | **Last name:** | **Short name:**

Password: | **Mail system:** | **Explicit policy:**

Password Options... | **Enable roaming for this person** | **Create a Notes ID for this person**

Import Text File...

Registration Queue (local):

User Name	Registration Status	Date
-----------	---------------------	------

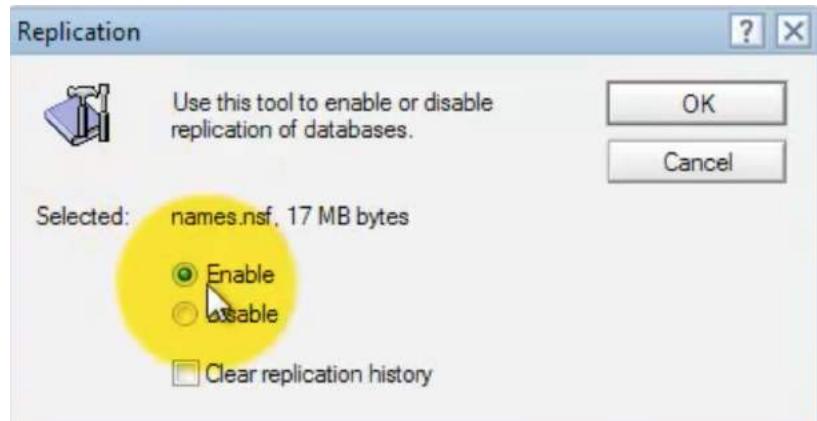
The screenshot displays two main windows from the IBM Domino Administrator:

- User Registration Queue (Local):** Shows a list of users with their status and creation date. A yellow circle highlights the "Weak" password strength for the first user.
- Register Person - Alexis4:** A dialog box for creating a new person. It includes fields for First name, Middle name, Last name, Short name, Password, Mail system, and Explicit policy. A yellow circle highlights the "Weak" password strength.
- IBM Domino Administrator Confirmation Dialog:** A modal window stating "All 5 people registered successfully! See local Notes log for details." A yellow circle highlights the "OK" button.

21 - Replicating Server Document Changes

The screenshot shows the Domino Administrator interface for a server named "Training/LGINFOTECH".

- Left Panel:** Shows the navigation tree under "Domino Directories" and "Policies".
- Center Panel:** Displays a list of users: Administrator, Alexis, Alexis1, Alexis2, Alexis3, Alexis4, Alexis5, and Kumar, Kiran. A yellow circle highlights the "File" tab in the top menu bar.
- Right Panel:** A context menu for a selected database (names.nsf) is open, with "Replication..." highlighted by a yellow circle.
- Bottom Status Bar:** Shows the paths: Lotus Notes/Domino Server:names.nsf, Training's Log:log.nsf, and LAB's Directory:names.nsf. It also displays disk usage statistics for various program files.

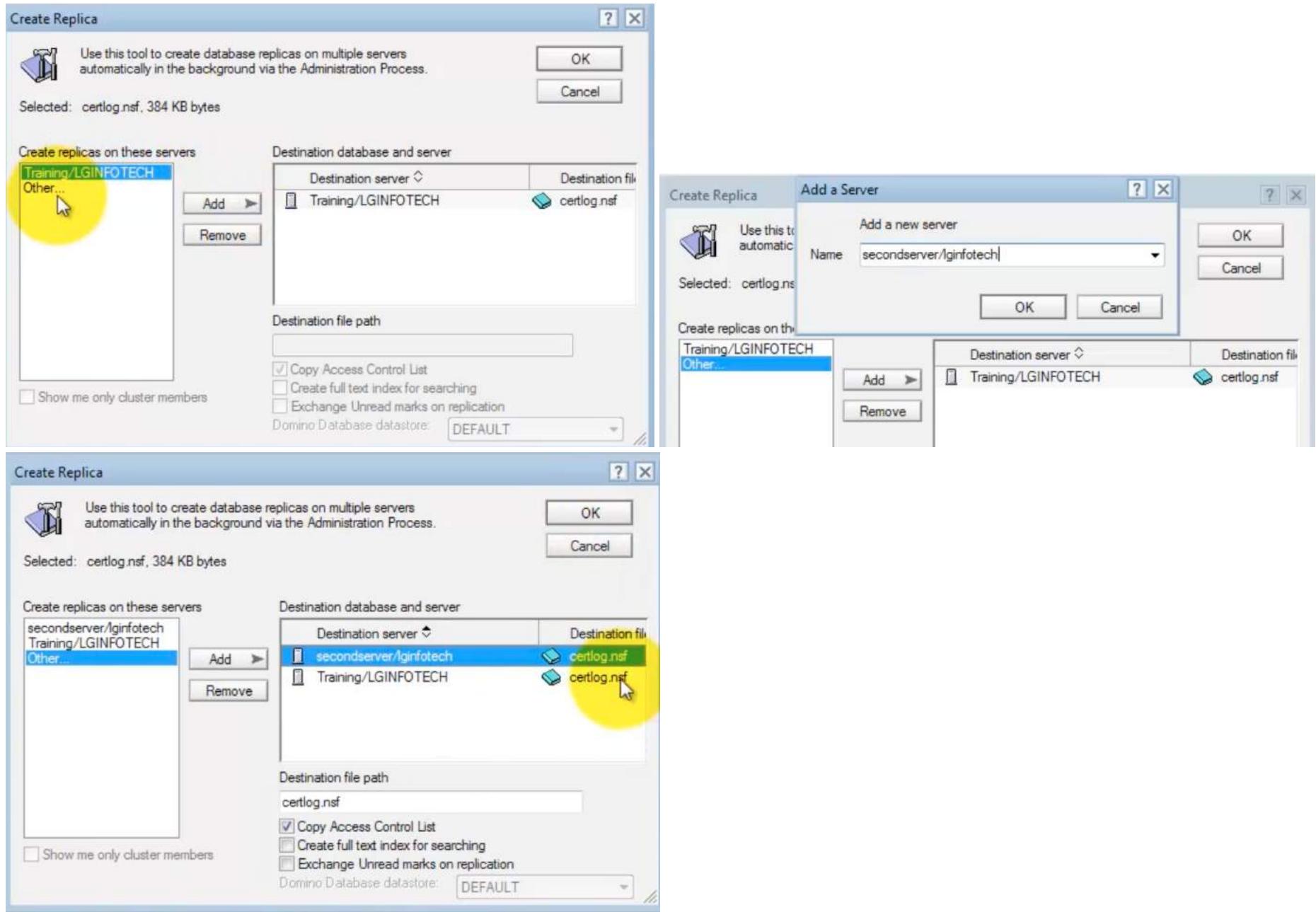


22 - Verifying the Lotus Domino Installation

The top-left screenshot shows the 'File' view of the Domino Directory. The top-right screenshot shows the 'Domino Directory' interface. The bottom-left screenshot shows the 'Administration Requests' interface.

23 - Creating Replicas on multiple servers

The top screenshot shows the 'File' view of the Domino Directory. The bottom screenshot shows the same view, likely demonstrating a step in a process.



24 - Creating Groups

This screenshot shows the Domino Administrator interface for creating a new group.

- Left Panel:** Shows the navigation tree under 'Server: Training/LGINFOTECH'. A yellow circle highlights the 'Groups' icon under 'Domino Directories'.
- Top Bar:** Includes standard menu items like File, Edit, View, Create, Actions, Administration, People, Help, and various toolbar icons.
- Main Area:**
 - Header:** 'LAB Domain - Training/LGINFOTECH...' and tabs for People & Groups, Files, Server..., Messaging..., Replication, Configuration.
 - Toolbar:** Buttons for Add Group, Edit Group, Delete Group, Copy to Personal Address Book.
 - Group List:** A table showing existing groups:

Group	Category
ALL Employees	
LocalDomainAdmins	Administration
LocalDomainServers	Administration
OtherDomainServers	Administration
 - New Group Form:** A modal window titled 'Mailing list group : Marketing'.

Basics	
Group name:	<input type="text" value="Marketing"/>
Group type:	<input type="radio"/> Mail only
Category:	<input type="checkbox"/>
Description:	<input type="text"/>
Mail Domain:	<input type="text"/>
Internet Address:	<input type="text"/>
Auto Populate Method:	<input type="text" value="None"/>
Members:	<input type="text" value="Alexis/LGINFOTECH, Alexis2/LGINFOTECH, Alexis4/LGINFOTECH"/>

25 - Creating and assigning organizational and explicit policy

Policies

- A Policy document and associated Policy Settings documents
- Can apply to all users, an OU, a group, or a single user
- Multiple policies can apply to a user; policy precedence rules determine the effective policy setting
- Can be organizational or explicit

Types of Policy Setting Documents

- Activities
- Archiving
- Desktop
- Mail
- Registration
- Security
- Setup
- Lotus Traveler
- Roaming
- Symphony

Policy Precedence Rules

- Specific overrides general:
 - Explicit overrides organizational
- Change precedence in the Policy Settings document

The screenshot shows a web-based configuration interface for 'Sales Registration Settings'. At the top, there's a navigation bar with tabs: Basics, Mail, ID/Certifier, Miscellaneous, Comments, and Administration. The 'Basics' tab is selected. Below the tabs, there's a 'Name' field containing 'Sales Registration Settings' and a 'Description' field with some placeholder text. The main area is divided into sections: 'Basic User Registration Options' and 'Password Options'. Under 'Basic User Registration Options', there's a dropdown for 'Choose a registration server' set to 'West01/SVR/wCorp'. There are three checkboxes: 'Don't set value', 'Inherit' (which is checked), and 'Enforce'. Under 'Password Options', there's a dropdown for 'Choose a password quality' set to 'Strong user password (3)'. There are also three checkboxes: 'Don't set value', 'Inherit' (which is checked), and 'Enforce' (which is checked).

Static and Dynamic Policy Settings

- Static:
 - Set during user registration
 - Set during workstation setup
- Dynamic:
 - Set when a user logs into the server

LAB Domain - Training/LGINFOTECH - IBM Domino Administrator

Edit Administration Configuration Help

Tools

- Certification
- Registration
- Policies
- Create...
- Synopsis...
- Hosted Org
- Server
- DB2 Server
- ID Vaults

Create New Policy

This tool creates a new policy document or a policy settings document.

OK Cancel

What type of policy document do you want to create?

Policy

Settings

Archive

A Policy sets up the hierarchical relationship between policies and specifies functional settings documents.

Policy

Basics | Policy Assignment | Policy Precedence | Comments | Administration

Basics

Policy name: First Policy

Policy type: Explicit

Description:

Category:

Setting Type Setting Name

Registration:	New...
Setup:	New...
Archiving:	New...
Desktop:	New...
Security:	New...
Mail:	New...
Connections:	New...

Setting Type Setting Name

Registration:	New...
Setup:	New...

Basics

Name: Reg

Description:

Basic User Registration Options

Choose a registration server:	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Training/LGINFOTECH			

Password Options

Choose a password quality:	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Acceptable user password (8)			
Acceptable user password (7)	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Acceptable user password (6)			
Acceptable user password (5)	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Acceptable user password (4)			
Acceptable user password (3)	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Acceptable user password (2)			
Acceptable user password (1)	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Any password accepted (0)			

Mail User Registration Options

Choose the mail system:	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Lotus Notes			
POP	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
IMAP			

Internet Address Options

Choose an internet address format:	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
FirstName LastName			
FirstName MI LastName	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
FI LastName			
FI MI LastName			

Choose an internet address separator:

None	<input type="checkbox"/> Don't set value	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Underscore			

LAB Domain - Training/LGINFOT...

People & Groups | Files | Server... | Messaging... | Replication | Configuration

Server: **Training/LGINFOTECH**
Release 8.5.3 on Windows/7 6.1 Intel Pentium

Policies

- by Settings (highlighted)
- by Hierarchy
- Accounts

Policy settings for Domain LAB:

Registration Settings

Reg

Policy settings

Messaging | Replication | Configuration

OTECH
Windows/7 6.1 Intel Pentium

Policy settings for Domain LAB:

Registration Settings

Reg

Effective policy settings

Registration Settings : Effective Policy for: */First Policy

Basics | Mail | ID/Certifier | Miscellaneous | Comments | Administration

Basics

Name: Effective Policy for: */First Policy
Description: Derived from the following policies: *, */First Policy

Assign Policy Options

Selected: LAB's Directory (names.nsf) on Training/LGINFOTECH
For: 1 selected user
Users with an existing policy: 0 Allow replacement of policies
Policy to assign: **SEcondPolicy** (highlighted)

How to apply policies to selected users
In the Policy document (recommended)

View Policy Synopsis Perform updates in background

Document Properties...
Copy
Copy as Link
Print...
Register Person...
Move to Another Server...
Rename...
Delete
Recertify...
Set Person's Internet Address...
Validate Unique Internet Address...
Roaming...
Assign Policy... (highlighted)
Create Replica...
Find User(s)...
Policy Synopsis...
License Tracking...
Open Fault Reports...
Set DB2 Username/Password...
Validate DB2 Username/Password...
Close Document

IBM Notes Administration Part 2

26 - Setting Up Server Administration

Administration Levels

	Enter Select System Commands	Full OS Access	General Administrative Tasks	Manage Databases	Use Remote Control	Use Some Console Commands
Full	X	X	X	X	X	X
Administrator			X	X	X	X
Database				X		
Full Remote Console					X	X
View only						X
System	X	X				
Restricted System	X					

Server: Training/LGINFOTECH Yaswika

Basics | Security | Ports... | Server Tasks... | Internet Protocols... | MTAs... | Miscellaneous | Transaction

Administrators

Full Access administrators: Administrator/LGINFOTECH
Training/LGINFOTECH

Administrators: Administrator/LGINFOTECH

Database Administrators: Alexis2/LGINFOTECH
Alexis2/LGINFOTECH

Full Remote Console Administrators:

View-only Administrators:

System Administrator:

Restricted System Administrator:

Restricted System Commands:

Obsolete as of Domino 6:
Administrator server from a browser.

Security Settings

Compare public keys:
Log public key mismatches:

LAB Domain - Training/LGINFOTECH

People & Groups | File | Server... | Messaging... | Replication | Configuration |

Server: Training/LGINFOTECH

Release 8.5.3 on Windows 7 6.1 Intel Pentium

Current Server Discovery: All Server Documents, Configurations, Connectors, Programs, External Domain Network Info

Messaging, Replication, Directory, Security, Web, Monitoring Configuration, Health Monitoring, Other, Offline Services, Miscellaneous

Server name: Training/LGINFOTECH
Server title: Training/LGINFOTECH
Domain name: LAB
Fully qualified Internet host name: Yaswika
Cluster name:
Load Internet configurations from Server/Internet Sites documents
Maximum formula execution time: 120 seconds

27 - Customizing the Domino Administrator Work Environment

Application
Replication
Mobile
Instant Messaging
Import...
Export...
Print... Ctrl+P
Page Setup...
Preferences
Security
Close All Open Window Tabs
Exit Administrator

Intel Pentium

Group

Group
ALL Employees
LocalDomainAdmins
LocalDomainServers
Marketing
OtherDomainServers

User Preferences...
Location Preferences...
Client Reconfiguration Wizard...
Administration Preferences...
Toolbar Preferences...
Status Bar Preferences...

Administration Preferences

Manage these Domino Domains
LAB

Settings for Domain LAB
Location setting: Do not change location
Directory server: Training/LGINFOTECH

Domino Administrator Startup Settings
On startup:
Startup domain:
Startup server:

 Automatically run in live console mode
 Open specific database(s): ddm.nsf
Database(s): ddm.nsf
Use commas (,) to separate databases
Server:
 Show administrator home page
 Refresh server bookmarks

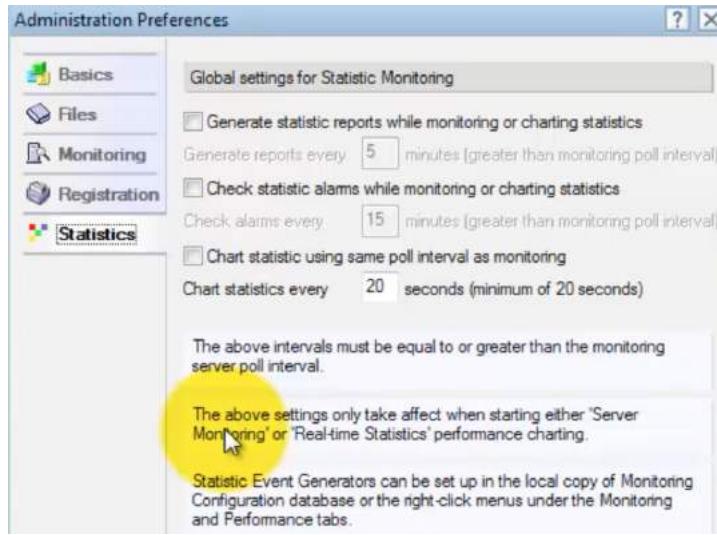
Administration Preferences

Global settings for Monitoring
Do not keep more than 4 MB of monitoring data in memory (4-99 MB)
Not responding status displayed after 10 minutes of inactivity
 Generate server health statistics and reports

Location specific Monitoring settings
When using location: Online
Monitor servers: From this computer
 From server
Collection Server...
Poll servers every 1 minutes (1-60 mins)
 Automatically monitor servers at startup

Administration Preferences

Registration domain: LAB
 Create Notes IDs for new users
Certifier ID... Explicit policy: /SecondPolicy
 Use CA Process Registration Server... User setup profile: (None Available)
Training/LGINFOTECH
Mail Options... User ID/Password Options...
The following policies are active:
Organization Policy: (None)
Explicit Policy: /SecondPolicy
Advanced Options... Server/Certifier Registration...



28 - Setting access to create databases on the server

The screenshot shows the Domino Administrator interface with the title 'LAB Domain - Training/LGINFOTECH'. The left sidebar shows a tree view of server components, with 'Server' expanded and 'Current Server Document' selected. The main pane displays the 'Server: Training/LGINFOTECH' configuration. The 'Basics' tab is active, showing the following details:

Server name:	Training/LGINFOTECH	Server build number:	Release 8.5.3
Server title:		Routing tasks:	Mail Routing
Domain name:	LAB	SMTP listener task:	Disabled
Fully qualified Internet host name:	Yaswika	Server's phone number(s):	
Cluster name:		CPU count:	8
Load Internet configurations from Server/Internet Sites documents:	Disabled	Operating system:	Windows/7 6.1 Int
Maximum formula execution time:	120 seconds	Is this a Sametime server? No	

The 'Security Settings' section includes:

- Compare public keys:
- Log public key mismatches:
- Allow anonymous Notes connections: Yes No
- Check passwords on Notes IDs: Enabled Disabled

The 'Server Access' section lists permissions for various actions:

Access server:	Who can -	Pass thru Use
Access server:	<input type="checkbox"/> users listed in all trusted directories	Access this server:
Not access server:	<input checked="" type="checkbox"/>	Route through:
Create databases & templates:	<input checked="" type="checkbox"/> Alexis1/LGINFOTECH	Cause calling:
Create new replicas:	<input checked="" type="checkbox"/>	Destinations allowed:
Create master templates:	<input checked="" type="checkbox"/>	
Allowed to use monitors:	<input checked="" type="checkbox"/> *	
Not allowed to use monitors:	<input checked="" type="checkbox"/>	
Trusted servers:	<input checked="" type="checkbox"/>	

29 - Setting Logging Levels

Domino Server Log

- Mail routing events
- Replication events
- Server phone calls
- Security events
- Newsgroup events
- Miscellaneous events
- Database usage
- User activity (if configured)

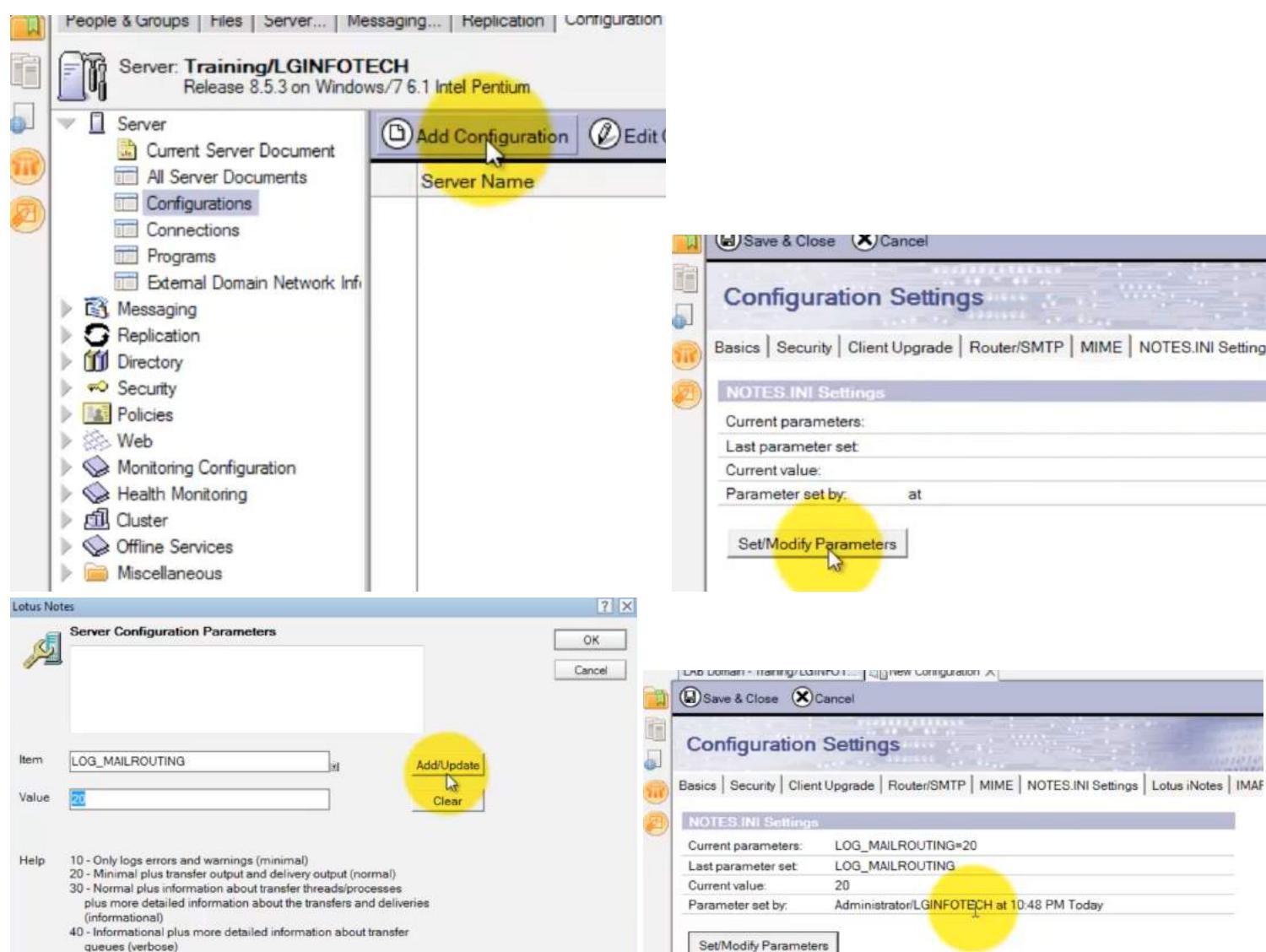
The Notes.ini file

- One for server, another for client

- To edit:
 - Edit the file directly, but this can cause unexpected results
 - Use the Set Configuration server command.
 - Use a Configuration Settings document (server notes.ini only).

Logging Levels

- LOG MAILROUTING
- LOG REPLICATION
- LOG SESSIONS
- LOG TASKS
- LOG VIEW EVENTS

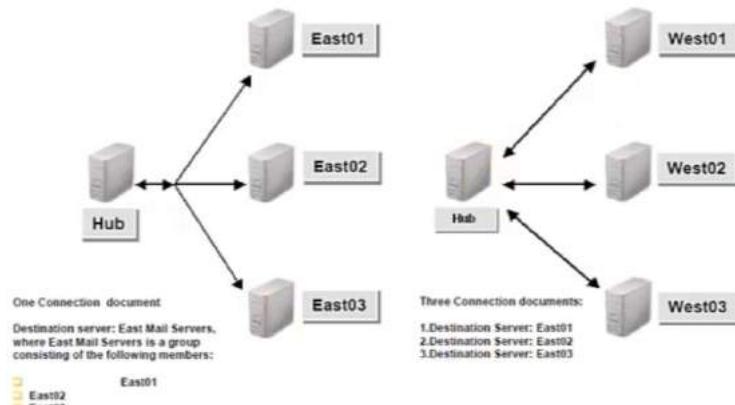


30 - Creating Server Groups for Replication

Synchronizing Lotus Domino System Databases

- After completing this lesson, you should be able to:
 - Create server groups for replication.
 - Create a Connection document.

Server Groups and Replication



Replication Controls

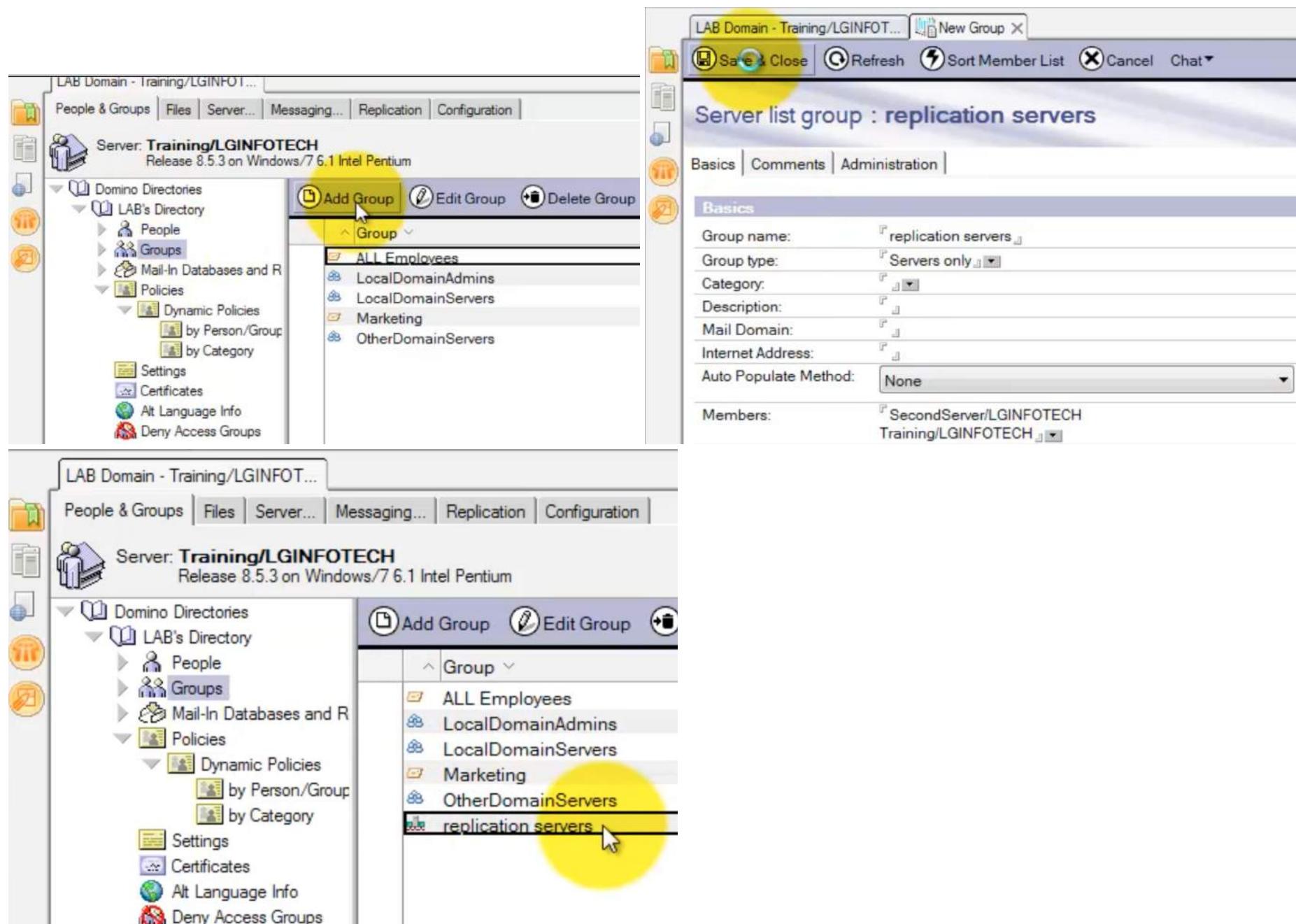
- Replication type
- Database priority
- Connection documents
- Selective replication
- Server access
- Access Control List
- Element access

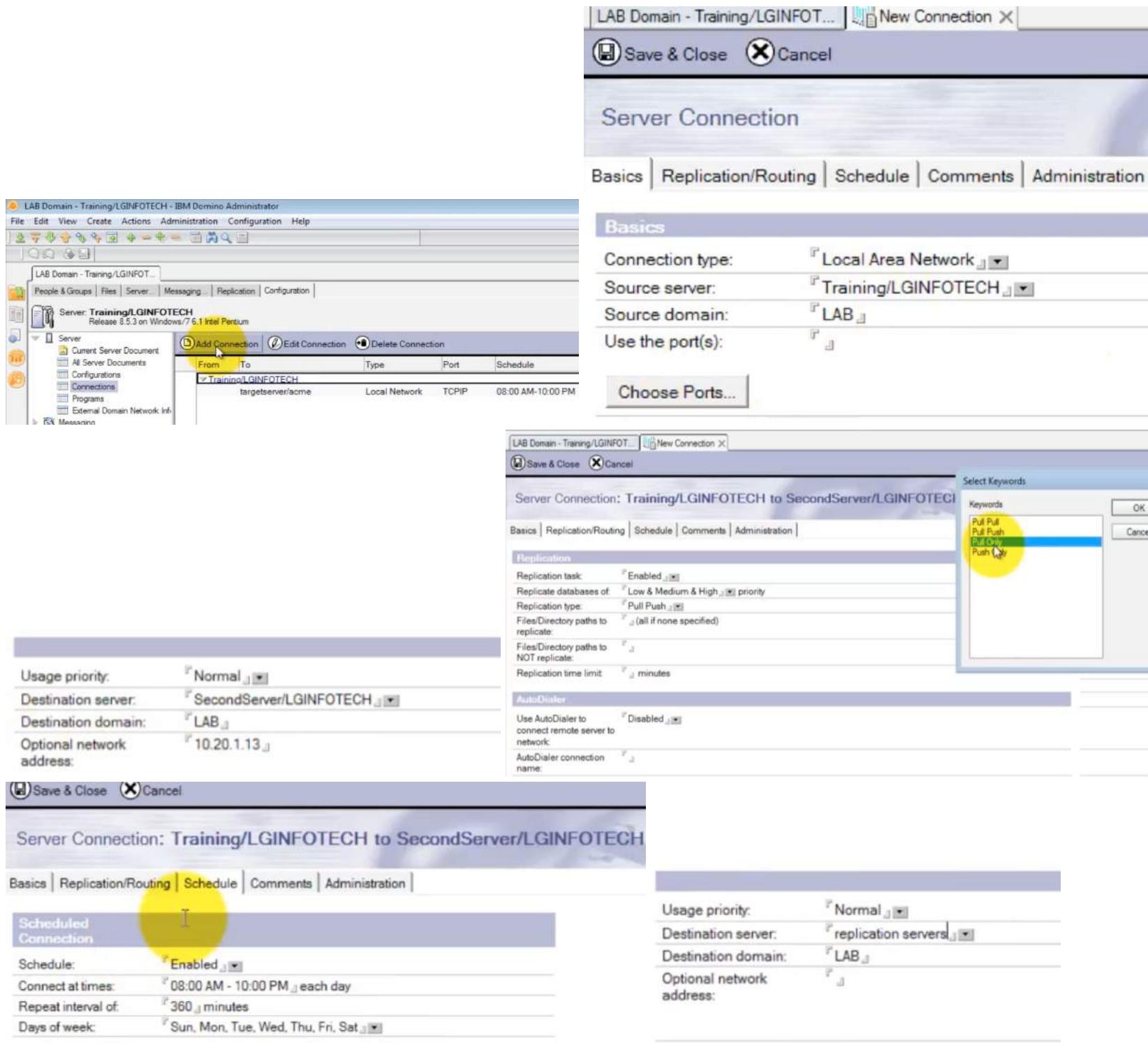
Replication Types

- Pull Pull
- Pull Push
- Pull only
- Push only

Methods for Forcing Replication

- Console commands
 - Console commands and a text file listing servers and databases to replicate
- Domino Administrator:
 - On the Server tab -> Tools pane, click Server -> Replicate
- Lotus Notes or Domino Administrator:
 - Select the database and click File -> Replication -> Replicate





32 - Configuring Notes Named Networks

Configuring Basic Intranet Mail Routing

After completing this lesson, you should be able to:

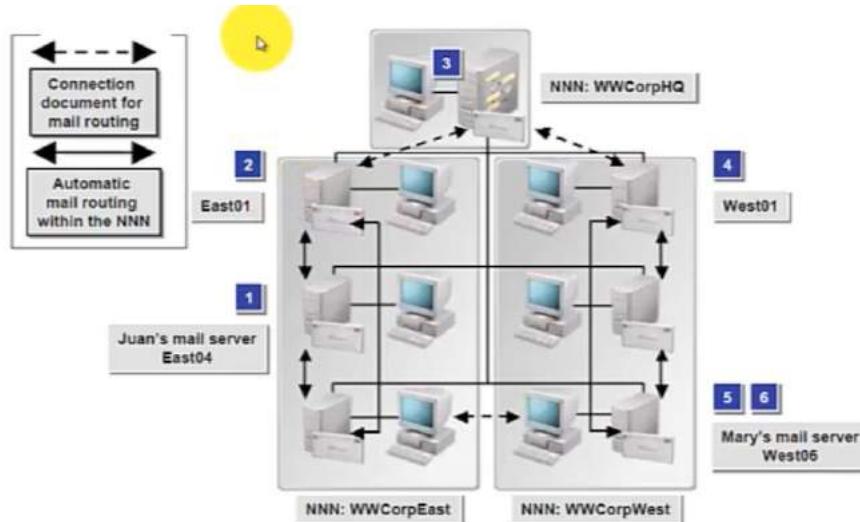
- Configure Notes Named Networks.
- Implement a hub-and-spoke mail routing topology.
- Select a mail storage format for incoming mail.

Intranet Mail Routing Checklist

Task Procedure

- Set up Notes Named Networks for mail routing.
- Create mail routing topologies and schedule mail routing between NNNs.
- Select a mail storage format

Intranet Implementation Example



Mail Routing Components

- Mail file
- Mail server
- Mailer
- Domino Directory
- Mail.box
- Router

Opportunistic Routing

- Routing mail when servers connect to replicate based on established replication schedule
- Might not be often enough to transfer mail between NNNs

Connection Document Mail Routing Options

- Routing task
- Route at once if X messages pending
- Router type

Router Types and Connection Documents

- Two Connection Documents required
- Can use Pull Push for one server and Push Wait for the other

Router type:	Pull Push
Pull routing request protocol:	Notes RPC
Request the following when issuing a pull request:	<input checked="" type="checkbox"/> Hub/SVR/wwcorp(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 checked="" type="checkbox"/> The following servers/domains/hosts: West01/SVR/WWCorp
Pull router timeout:	30 seconds

Pull Push and Pull Only settings

Mail Storage Formats

- MIME
 - Messages sent over SMTP are always sent in MIME format
- Notes Rich Text

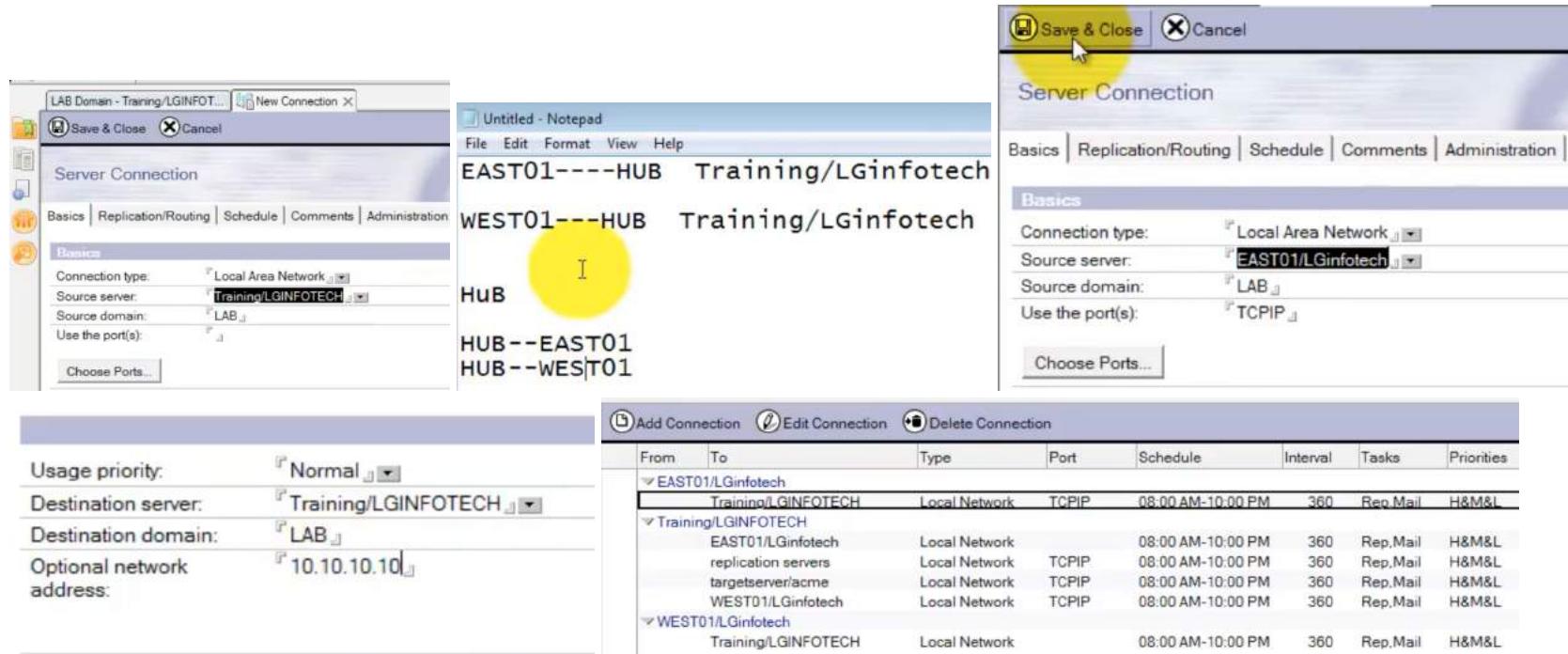
The screenshot shows the Domino Administrator interface for a server named **Training/LGINFOTECH**. The left sidebar shows the navigation tree with **Server** selected, and **Current Server Document** is highlighted. The right pane displays the **Ports** tab of the server configuration. The table lists network ports:

Port	Protocol	Notes Network	Net Address	Enabled
TCPIP	TCP	TCP	Training	Enabled
			Training	Disabled

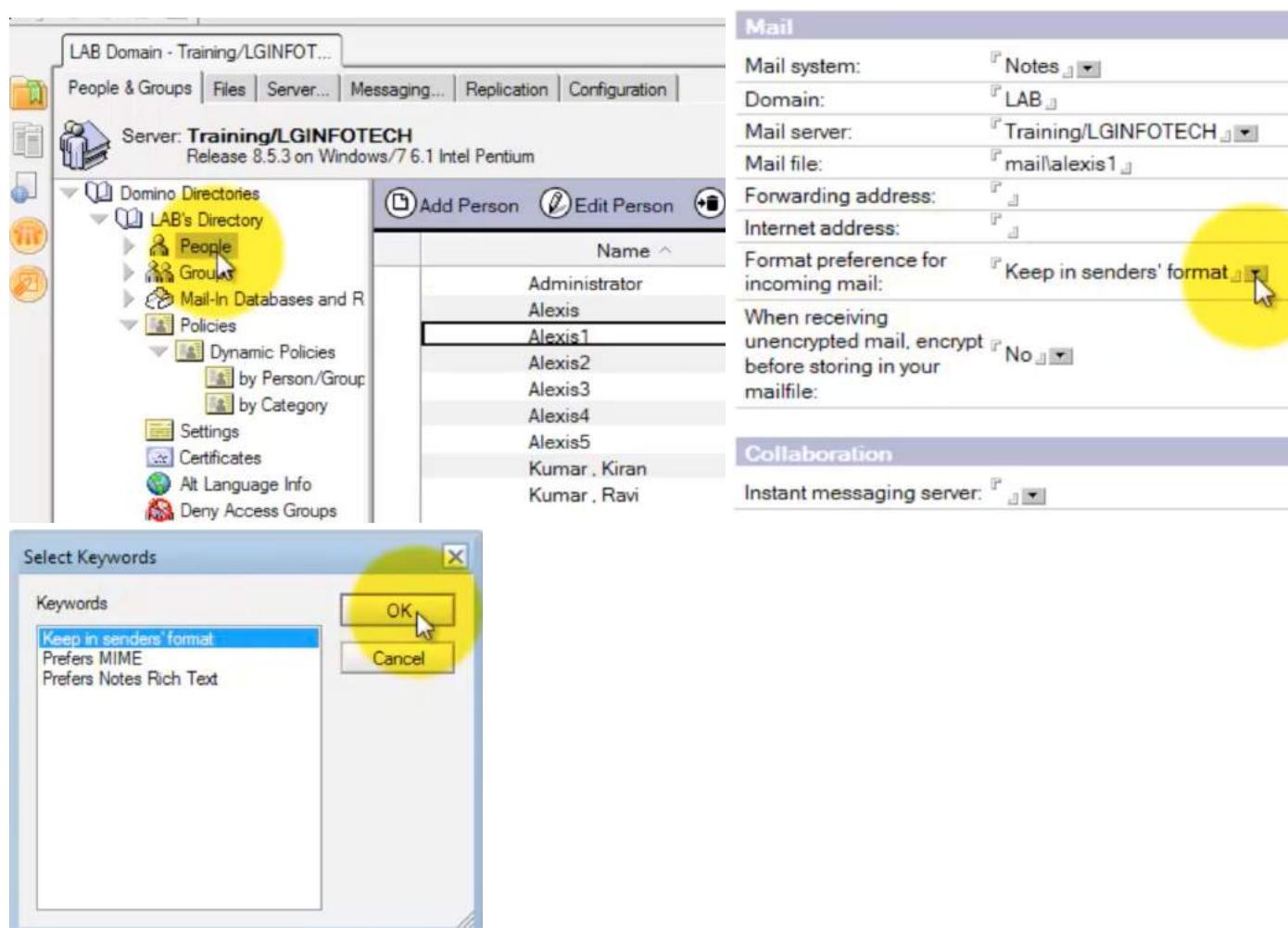
Domino Command:

```
tell router update config
```

[33 - Implementing a Hub-and-Spoke Mail Routing Topology](#)



[34 - Selecting a Mail Storage Format for Incoming Mail](#)



[35 - Configuring Mail Routing to the Internet](#)

[Configuring Mail Routing to the Internet](#)

After completing this lesson, you should be able to:

- Enable the SMTP listener task
- Configure Basic SMTP settings.
- Restrict Internet mail delivery.
- Enable whitelist and blacklist filters.
- Configure extended SMTP (E/SMTP) options.
- Configure Internet addressing
- Test SMTP.

[Internet Mail Routing Checklist](#)

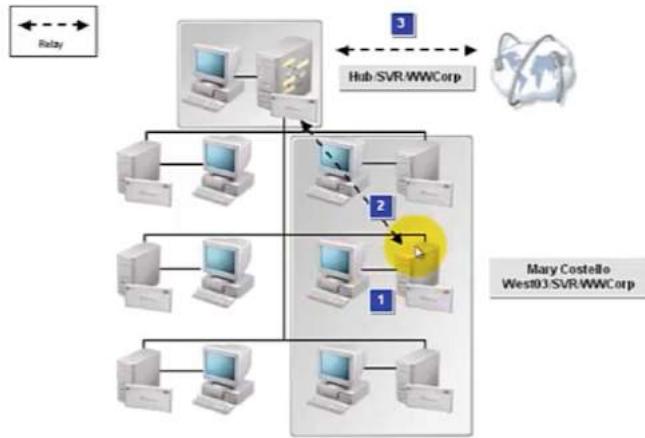
Task Procedure

1. Enable the SMTP listener task on appropriate servers
2. Configure basic SMTP options.
3. Restrict mail flow to and from the Internet.
4. Set advanced SMTP options.
5. Configure Internet mail addressing.

[SMTP Implementation Scenarios](#)

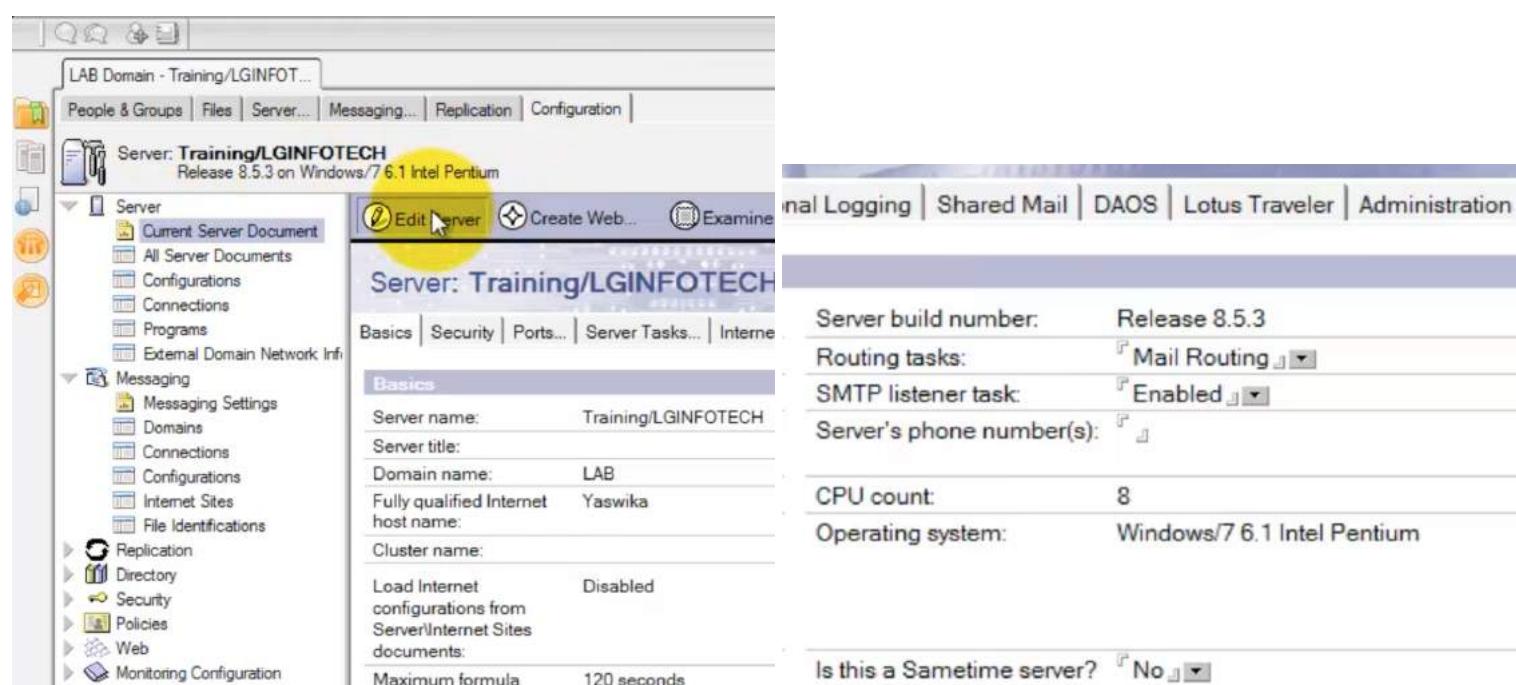
- All servers
- Selected servers
- Combined

[Sample Internet Mail Routing Scenario](#)



[SMTP Listener and Router Tasks](#)

- SMTP listener task:
 - Handles incoming SMTP connections.
 - Delivers messages received over those connections to Mail.box.
- Router task for SMTP:
 - Same Router task that handles Lotus Notes routing (NRPC).
 - When a message in Mail.box requires transfer to another server, the Router determines where to send it and whether to send it over NRPC or SMTP.



[SMTP Inbound and Outbound Controls](#)

- Inbound controls enable you to allow or deny:
 - Receiving messages from specific external Internet domains.
 - Receiving unsolicited commercial messages in general or from sources listed in one or more DNS Blacklists (DNSBLs).
 - Receiving messages directed to specific Lotus Notes addresses.
 - Relaying of messages from specific external Internet hosts to external Internet domains.
- Outbound controls enable you to allow or deny:
 - Sending messages to specific Internet addresses to be sent out to the Internet.
 - Sending messages from specific Lotus Notes addresses to the Internet.

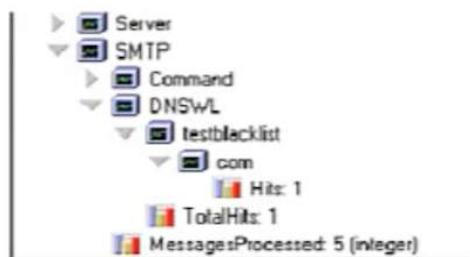
DNS Whitelist Filters

- Used in conjunction with anti-spam features
 - Validate that the mail received by your inbound SMTP server is legitimate mail
- Query process:
 - DNS query tries to locate the IP address of the connecting server in the white list database as specified on the Configuration Settings document.
 - IP addresses found in the database are considered to be legitimate senders of e-mail and will be added to the white list host lists

Enabling DNS Whitelist Filters

- Silently skip blacklist filters (Default)
- Log only
- Log and tag message

DNS Whitelist Filter Statistics



DNS Blacklist Filters

- Similar in operation to whitelist filters
- Query process:
 - When blacklist filters are enabled, the Lotus Domino server sends a query to the specified sites to check the blacklist.
 - If a host is blacklisted, the Lotus Domino server will act in whatever way is specified in the Configuration Settings document

DNS Blacklist Filters	
DNS Blacklist filters:	Enabled
DNS Blacklist site:	query.dnsbl.org
Desired action when a connecting host is found in a DNS Blacklist:	Log and reject message
Custom SMTP error response for rejected messages:	Your host %s was blacklisted from sending messages to our site.

Actions for Hosts Found in Blacklist Database

- Log only (default)
- Log and tag message
- Log and reject message

Private Whitelist Filters

- Exceptions to blacklist filters
- Provide more granular administrative control

Private Whitelist Filter	
Private Whitelist Filter:	Enabled
Whitelist the following hosts:	mailrelay1.yourhost.com unix.aboyz.co.uk
Desired action when a connecting host is found in the private whitelist:	Log only

Private Blacklist Filters

- Exceptions to whitelist filters
- Provide more granular administrative control

Private Blacklist Filter	
Private Blacklist Filter:	Enabled
Blacklist the following hosts:	[65.89.51.] [65.154.124.] [65.194.13.] [140.99.186.] mapropin.com DBM003.myspace.com 65-243-133-27.classmates.com
Desired action when a connecting host is found in the private blacklist:	Log and reject message
Custom SMTP error response for rejected messages:	Your host %s was blacklisted from sending messages to our site.

Order of Whitelist and Blacklist Precedence

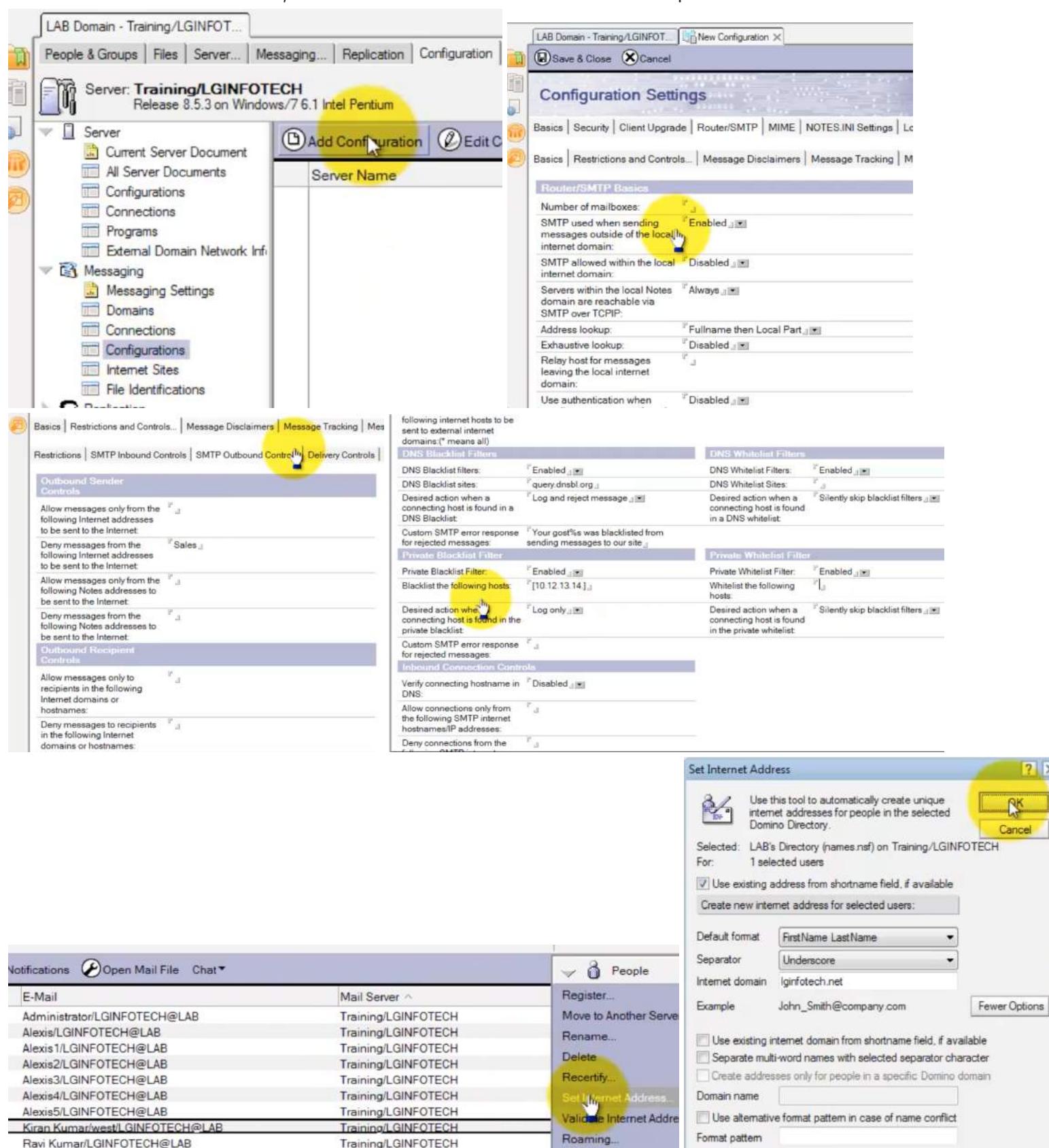
- Private whitelists
- Private blacklists
- DNS whitelists
- DNS blacklists

E/SMTP Settings Uses

- To reduce connection charges:
 - Set the extended Turn (ETRN) extension to enable the calling server such as an SP server to request the called server to push mail to the ISP server.
- To restrict messages of a specific size from being delivered:
 - Enable the **Size extension** field.

Configuring Internet Addresses

- When to configure:
 - During user registration
 - Or, any time after a user is registered
- Lookup options:
 - Full SMTP address only
 - Local part of the SMTP address
 - Full SMTP address, then if no matches are found, the local part SMTE address



36 - Establishing Mail Controls

Establishing Mail Controls

- After completing this lesson, you should be able to:

- Configure router restrictions
- Implement message disclaimers
- Implement mail delivery controls.
- Implement mail transfer controls.
- Configure multiple server mailboxes

[Mail Restrictions and Controls](#)

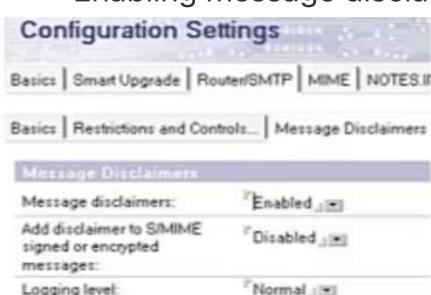
To control this type of mail flow	Use this field
Allow only the specified domains to send mail to this domain	Allow mail only from domains
Restrict specific domains from sending mail to this domain	Deny mail from domains
Restrict only specific organization hierarchy to send mail to this domain	Allow mail only from the following organizations and organizational units
To route larger messages as low priority, therefore, defer transferring until a different time of day	Send all messages as low priority if message size is between

[Message Disclaimers](#)

- Notices added to outgoing SMTP e-mail messages to protect an organization's legal interests
- Can be enabled or disabled from the Lotus Notes client, the Domino server, or both
- Multiple disclaimers can be used
- Implementation:
 - Enable message disclaimers at the server level
 - Create Mail Policy Settings documents that contain the appropriate disclaimer text for the organization

[Attaching and Enabling Message Disclaimers](#)

- Attachment options:
 - At the server, disclaimer text that is specified in the Policy Settings document is attached by the server
 - At the Lotus Notes client, disclaimer text is attached by the Lotus
- Notes client prior to depositing the mail message on the server
- Enabling message disclaimers



[Message Disclaimer Policy Settings](#)

[Mail Delivery Controls](#)

To control this type of mail delivery	Use this field
---------------------------------------	----------------

Maximum number of server threads Domino can create to deliver mail from mail.box to local mail files	Maximum delivery threads
Encryption	Encrypt all delivered mails
Whether or not the server permits the usage of pre-delivery agents	Pre-delivery agents
Maximum time (in seconds) that a pre-delivery agent, such as mail filter, can run before the Router interrupts it	Pre-delivery agent timeout
Whether the router supports the rule action to send copies of selected messages automatically to other recipients	User rules mail forwarding

Mail Transfer Controls

To manage this type of mail	Set this field
When low priority mail should be transferred	Low priority mail routing time range
How often the Router should retry transferring mail	Initial transfer retry interval
How often expired messages should be purged from the server's mail.box	Expired message purge interval

Using Multiple Server Mailboxes

- Reduces contention
- Increases reliability
- Increases delivery speed

Configuration Settings

Router/SMTP Basics

- Number of mailboxes:
- SMTP used when sending messages outside of the local internet domain: Disabled
- SMTP allowed within the local internet domain: Enabled
- Servers within the local Notes domain are reachable via SMTP over TCP/IP: Always
- Address lookup: Fullname then Local Part
- Exhaustive lookup: Enabled
- Relay host for messages leaving the local internet domain:
- Use authentication when sending messages to the relay host: Enabled

Configuration Settings

Router Restrictions

- Allow mail only from domains: All
- Deny mail from domains:
- Allow mail only from the following organizations and organizational units: (*Acme, *SalesCorp)
- Deny mail only from the following organizations and organizational units: (*Acme, *SalesCorp)
- Maximum message size:
- Send all messages as low priority if the message size is between: 5000 KB and the maximum message size.

Configuration Settings : smtp config

Basics

- Use these settings as the default settings for all servers: Yes
- OR
- Group or Server name:
- Type-ahead: Enabled
- International MIME Settings for this document: Enabled
- IMAP server returns exact size of message: Enabled
- POP3 server returns exact size of message: Disabled
- License Tracking: Enabled
- Minimum Client Level: (Does not pertain to Server Administrators)
- Maximum Client Level: (Does not pertain to Server Administrators)
- Comments:

Server: Training/LGINFOTECH

Release 8.5.3 on Windows/7 6.1 Intel Pentium

Server

- Current Server Document
- All Server Documents
- Configurations
- Connections
- Programs
- External Domain Network Info

Messaging

- Messaging Settings
- Domains
- Connections
- Configurations
- Internet Sites
- File Identifications

Add Configuration

Configuration Settings : smtp config

Message Disclaimers

- Message disclaimers: Enabled
- Add disclaimer to S/MIME signed or encrypted messages: Disabled
- Logging level: Normal

Server: Training/LGINFOTECH

Release 8.5.3 on Windows/7 6.1 Intel Pentium

Server

- Current Server Document
- All Server Documents
- Configurations
- Connections
- Programs
- External Domain Network Info

Messaging

- Messaging Settings
- Domains
- Connections
- Configurations
- Internet Sites
- File Identifications

Replication

Policy settings for Domain :

Mailset

Registration Settings

Reg

Policy settings

Mail Settings : Mailset

Basics

Name: Mailset

Description:

Configuration Settings : smtp config

Delivery Controls

- Maximum delivery threads:
- Encrypt all delivered mail: Disabled
- Pre-delivery agents: Enabled
- Pre-delivery agent timeout:
- User rules mail forwarding: Enabled
- Reverse-path for forwarded mail: Set reverse-path to null

Quota Controls

- Over warning threshold notifications: None
- Over quota notification: None
- Over quota enforcement: Deliver anyway (don't obey quotas)

Configuration Settings : smtp config

Transfer Controls

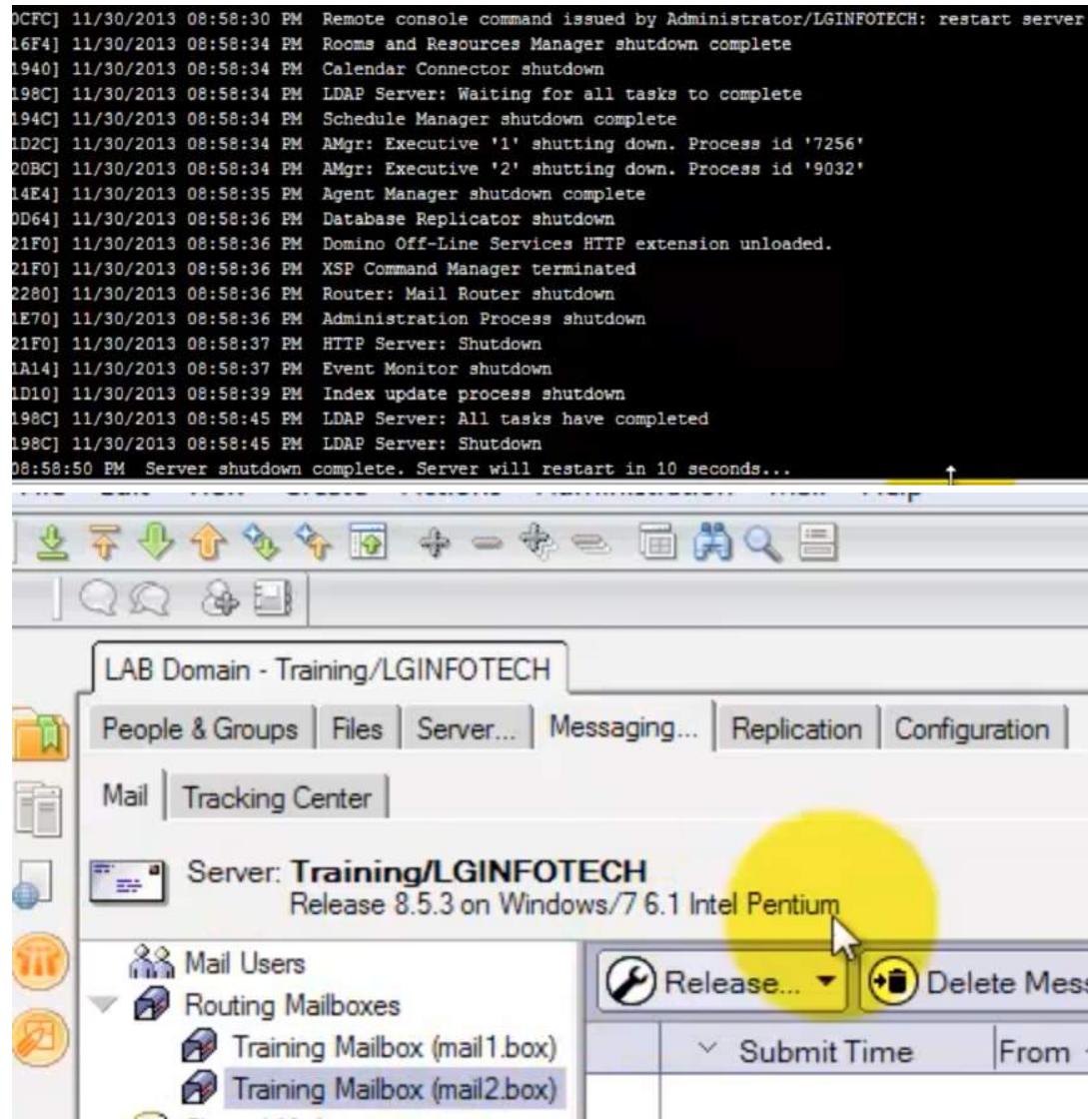
- Maximum transfer threads:
- Maximum concurrent transfer threads:
- Maximum hop count:
- Low priority mail routing time range:
- Low priority delay notification: Disabled
- Initial transfer retry interval:
- Expired message purge interval:
- Transfer and delivery delay notifications: Enabled
- Delay notification intervals: High priority mail: 4 hours

Domino Command: tell router update config

```

tell router update config
[17E8:0082-1970] 11/30/2013 08:56:06 PM Remote console command issued by Administrator/LGINFOTECH: tell router update config
[17E8:0005-15DC] tell router update config
[22A8:0002-2280] 11/30/2013 08:56:06 PM Router: Connection from server EAST01/LGINFOTECH not used; Server not found in D
[22A8:0002-2280] 11/30/2013 08:56:06 PM Router: Configuration updated and routing tables reloaded
[175C:0005-0164] 11/30/2013 08:56:09 PM Job Scheduler: Expanding group 'replication servers' to schedule replication with each me

```



[37 - Implementing Mail Rules and Storage Limits](#)

Mail Rules

- Define actions to be taken on certain messages
- Use to:
 - Reject messages.
 - Redirect messages with attachments to a quarantine database
 - Copy messages to another database.

Mail Rule Processing

- When the Domino server starts
- When Mail.box receives any new message
- When a new rule is added
- When Mail.box receives any encrypted message
- When a rule prevents a message from reaching its destination

Mail Rule Action

- Journal a message
- Move a message to a database for storage or quarantine
- Refuse to accept or deliver a message
- Change the routing state of a message
- Administrator review of messages redirected to quarantine database
- Stop processing of subsequent mail rules

Mail Journaling

- Captures copies of messages sent through the system
- Works in conjunction with mail rules
- Does not disrupt the normal routing process

How Mail Journaling Works

- Messages are examined as they pass through mail.box
- Journal flag is placed on the message before transferring it to the next server

- Selected messages are encrypted and saved to a Lotus Domino Mail Journaling database (mailjrn.nsf)
- Message is delivered from the destination server after removing the journal flag

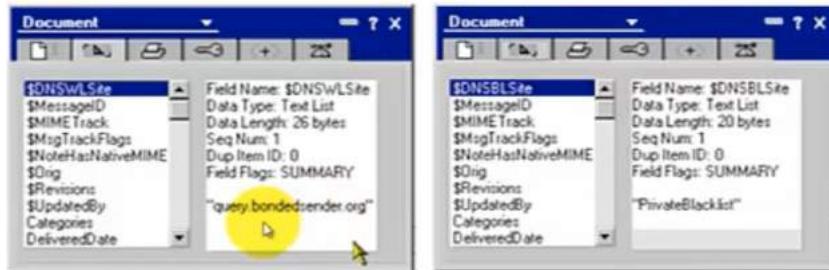
Tag Mail Rule Conditions

- Enables administrators and users to do more with the messages that get tagged by private whitelists, private blacklists, DNS whitelists, and DNS blacklists.
- For server mail rules, the administrator can move tagged messages to a particular database for analysis, or they can place the messages on hold.
- For user mail rules, the user can move tagged messages to a certain folder, delete them, or send copies to the administrator.

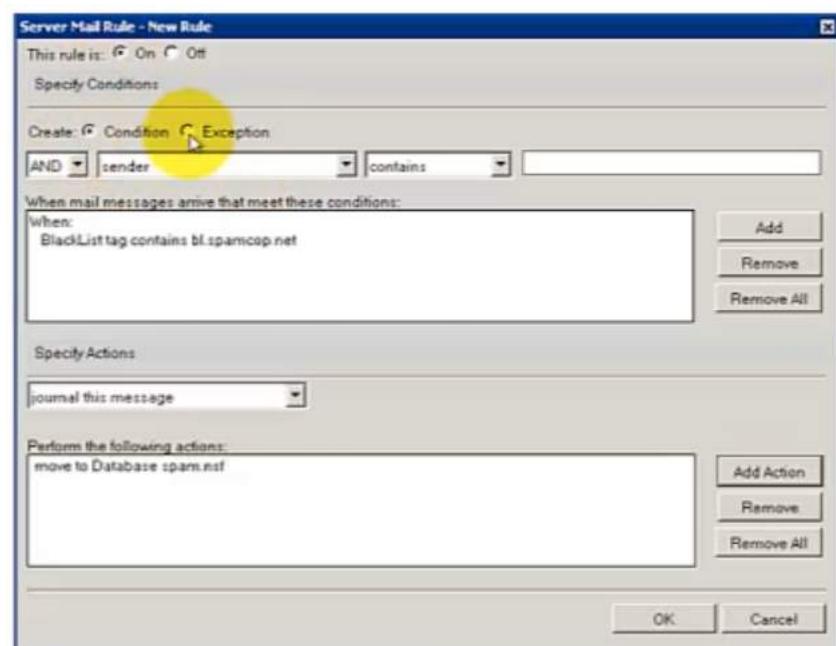
Tags, Field Names, and Values

Tag	Field name and value
Private Whitelist	\$DNSWLSite: <Private Whitelist>
DNS Whitelist	\$DNSWLSite: <Name of Whitelist host where address was found>
Private Blacklist	\$DNSBLSite: <Private Blacklist>
DNS Blacklist	\$DNSBLSite: <Name of Blacklist site where address was found>

Tagged Messages and Fields Examples



Creating Mail Rules with Tags



Mail Quotas

- Size limits that are set on user's mail files
- Two types:
 - Absolute
 - Warning threshold
- Associated with a particular mail file database, not with a user ID
- Implementation options:
 - During registration
 - Per database

[Enabling Inbox Maintenance in Mail Policy Settings](#)

Inbox Maintenance enabled in the Policy Settings Document

Enable mail Inbox maintenance:	<input checked="" type="checkbox"/> Yes	Inherit from parent policy:	<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Remove documents older than [X] days from inbox:	90		<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Maximum number of documents to remove per cleanup:	500		<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce
Do not remove unread documents from inbox:	<input type="checkbox"/> Yes		<input type="checkbox"/> Inherit	<input type="checkbox"/> Enforce

[Configuring Inbox Maintenance in the Server Document](#)

Mail Inbox Maintenance

Start executing Inbox Maintenance agent on:	Sat, 1 day(s)
Start executing Inbox Maintenance agent at:	01:00 AM
<input checked="" type="radio"/> Maintain inboxes for only these selected users on this home server	<input type="radio"/> Maintain inboxes based on policies
Selected users:	[List of users]
Remove documents older than [X] days from inbox:	90
Maximum number of documents to remove per cleanup:	500
Do not remove unread documents from inbox:	<input type="checkbox"/> Yes

[Archiving](#)

- Automation of copying outdated mail to an archive database or deleting the mail, and cleaning up the mail file
- Archiving policies:
 - Easy to manage and allow for standardization
 - Provide more control over mail environment

[Archiving Policy Documents](#)

- Policy document
- Archive Policy Settings document:
 - Whether to allow archiving
 - Whether or not to allow Lotus Notes users to set their own private archiving criteria where archiving occurs
 - Archive location
 - Archive log information
- Archive Criteria Settings document:
 - Establishes the criteria for document selection and mail file cleanup

Server: Training/LGINFOTECH
Release 8.5.3 on Windows/7 6.1 Intel Pentium

Server Configuration

Server Name: * - [All Servers]

New Rule...

Server Mail Rule - New Rule

This rule is: On Off

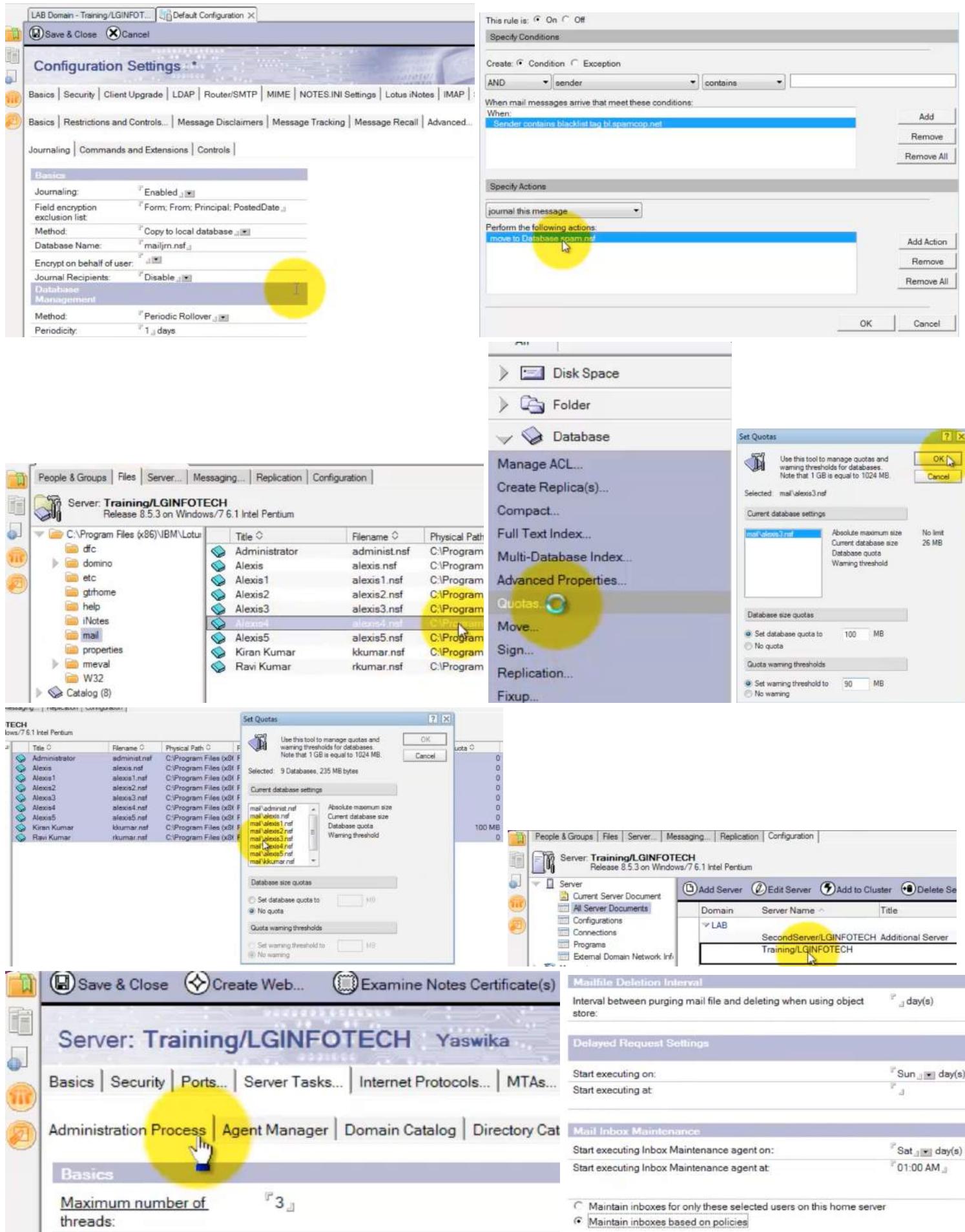
Specify Conditions

Create Condition Exception

AND sender contains make money

Specify Actions

Journal this message



[38 - Monitoring Mails](#)

[Monitoring Mail](#)

- After completing this lesson, you should be able to:
 - Verify routing and check mail delivery.
 - Enable mail statistics.
 - Enable message tracking.
 - Configure Message Recall.

[Mail Troubleshooting Checklist](#)

1. The network connections are set up properly.
2. The servers and Router are up and running.
3. The DNNs are set up properly.
4. The appropriate Connection documents exist and contain the following: the server name is correct, the schedule is enabled, the Router type is correct.
5. The connection requirements for sending mail, such as calling times or message thresholds, have been met.

7. Router restrictions do not prohibit message delivery.
8. SMTP settings are correct.
9. Inbound and outbound controls are properly set.
10. Quotas are not exceeded.
11. Mail rules do not prohibit message delivery.
12. The mail address is correct.
13. The person information is correct.

Mail Monitoring Checklist

1. Check for misdelivered mail.
2. Check mail monitoring tools.
3. Set up mail statistic monitors.
4. Enable message tracking

Misdelivered Mail

- Dead mail
 - Mail that is not delivered to the recipient and cannot be returned to the sender for non-delivery.
- Undelivered mail:
 - Mail that is not delivered because either the Router on the server is not running or the recipient's mail server is down

Mail statistics

- Provide additional information on:
 - Mail flow
 - Current mail configuration
- Use the Server Monitor to enable and monitor statistics

Message tracking

- Tracking information stored in MTstore.nsf
- Message tracking can:
 - Track messages across Lotus Domino domains.
 - Be used by administrators and users from a Lotus Notes client or Web browser.
 - Provide reports of where a particular mail message was sent.

Message Recall

- Allows users to retrieve Lotus Notes mail they accidentally or inappropriately sent to the wrong people
- Enabled by default in Domino 8.5
- Policy-based controls:
 - Specify which users can recall messages
 - Specify whether or not recipients can prevent recall requests
- Configuration options:
 - Mail Policy Settings document
 - Server Configuration document

Recalling a message

- Open or select the message in your Sent mail folder.
 - Click "**Recall Message**".
- If the message was sent to more than one recipient, select the recipients from which to recall the message.
- (Optional) To recall the message even if a recipient has already opened it, select "**Recall the message even if it has been read**".
- (Optional) To suppress recall status reports, clear "**Send me a recall status report for each recipient.**"
- Click **OK** twice.

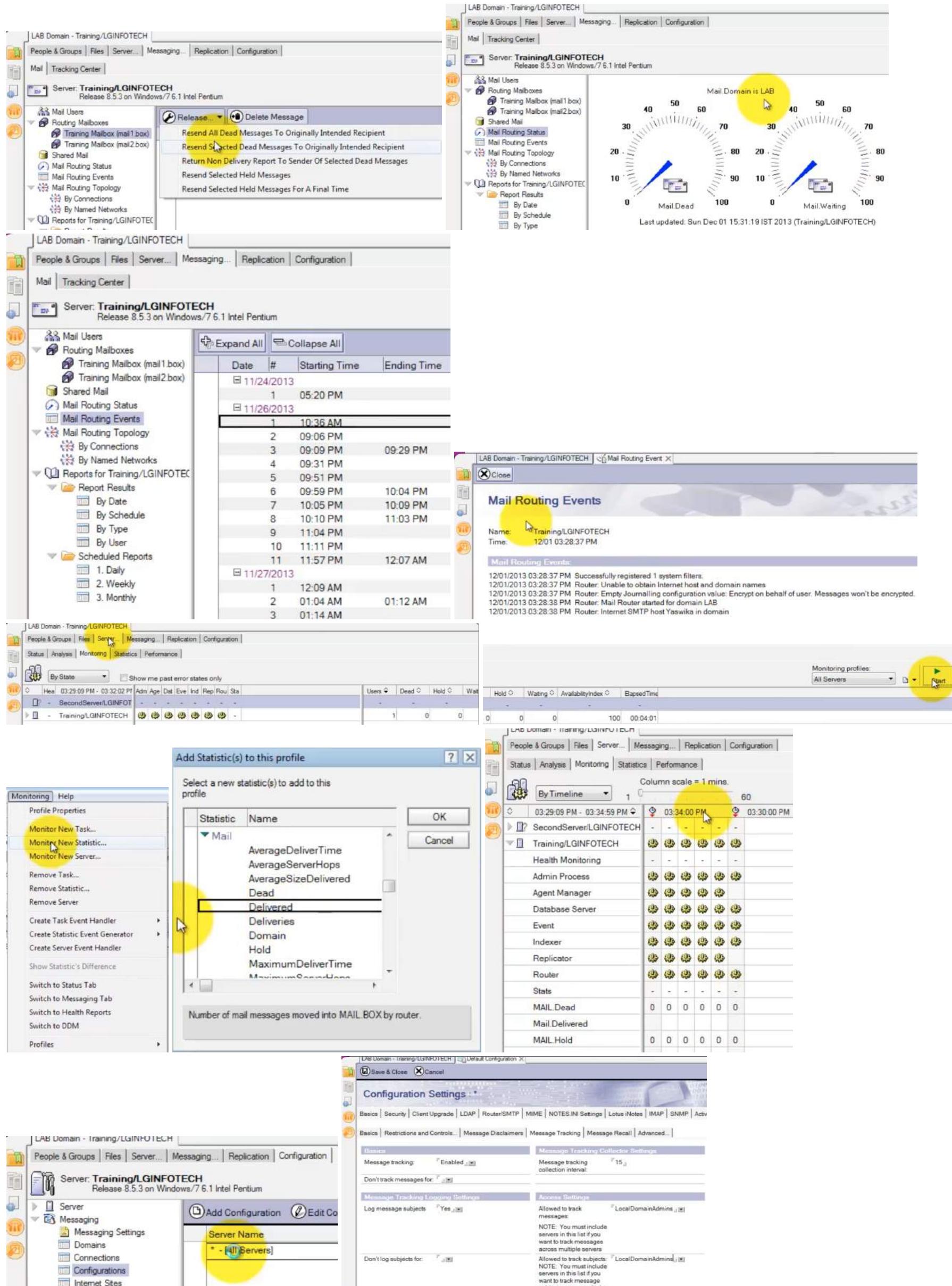
39 - Resolving Common Mail Routing Problems

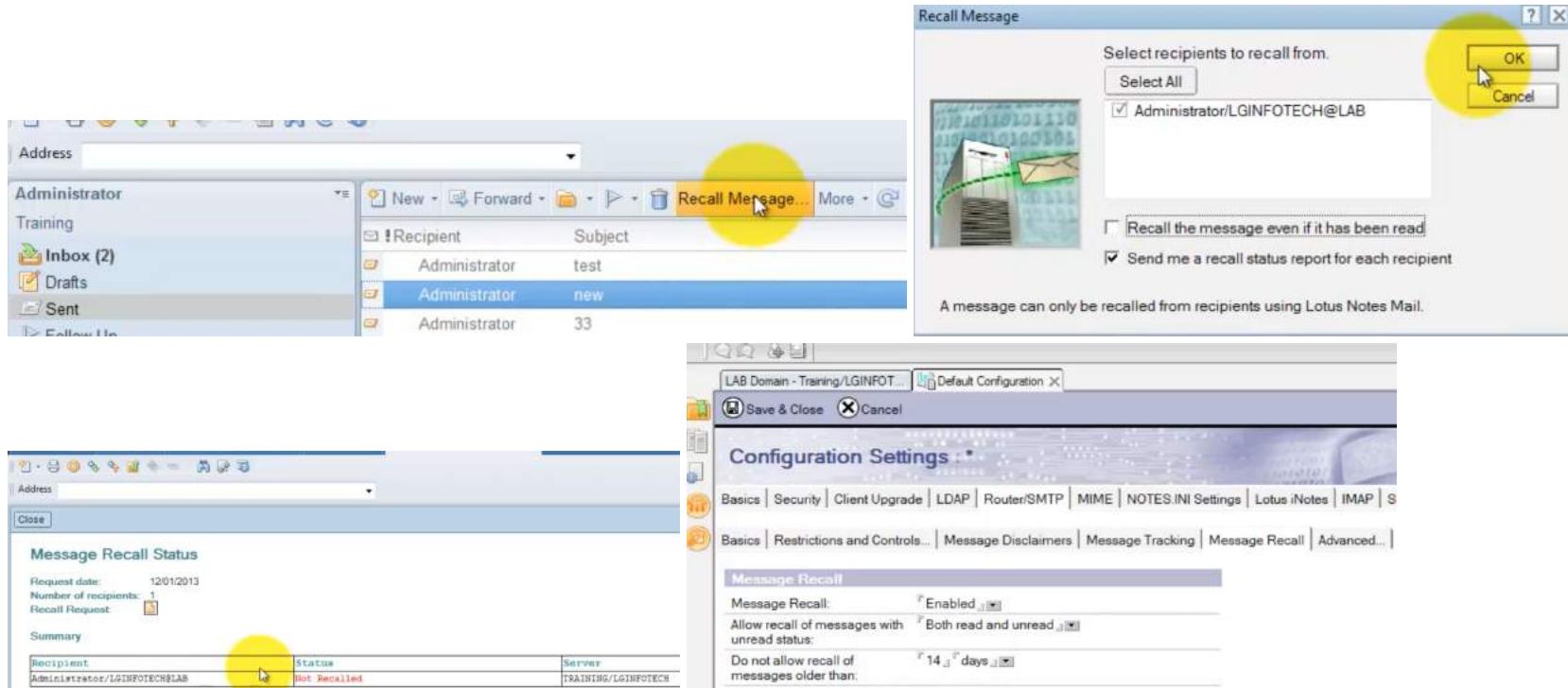
Resolving Common Mail Routing Problems

After completing this lesson, you should be able to:

- Send a mail trace

- Restart the Router.
 - Force mail routing.
 - Resolve undelivered and dead mail.





40 - Managing Users

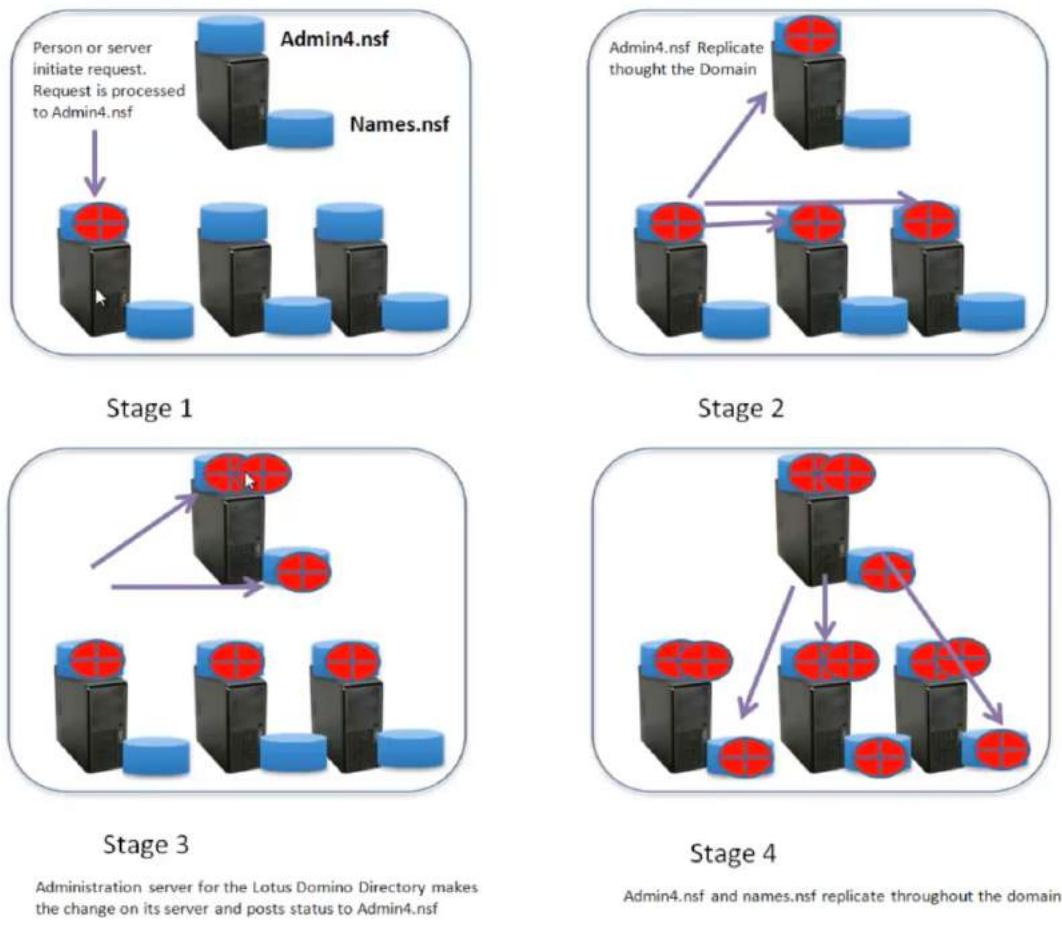
Agenda

- Managing Users
- Managing groups
- Managing both Lotus Notes and Non-Notes Clients
- Managing Servers
- Update Servers
- Configure Server Monitoring
- Monitor server performance
- Monitor servers with Lotus Domino Domain Monitoring
- Use the certification authority process to migrate certifiers and register users
- Resolve server problems
- Resolve replication problems
- Recover a Domino server
- Resolve user problems

Managing Users...

- Adding Users
- Changing a User Name
- Moving User Mail Files
- Extending an Notes ID Expiration Date
- Using the ID vault to Secure Users Ids
- Deleting Users
- Changing a User Location within the Organizational Hierarchy

Administration Process



Components of User Name

- Organization : Company Name
- Organizational Unit(s) : Department or Regions
- Common Name : Unique Name

Reasons to change user name

- The initial registration had an incorrect spelling
- A person changes his or her legal name due to:
 - Marriage
 - Divorce
 - Personal preference
 - Religious customs

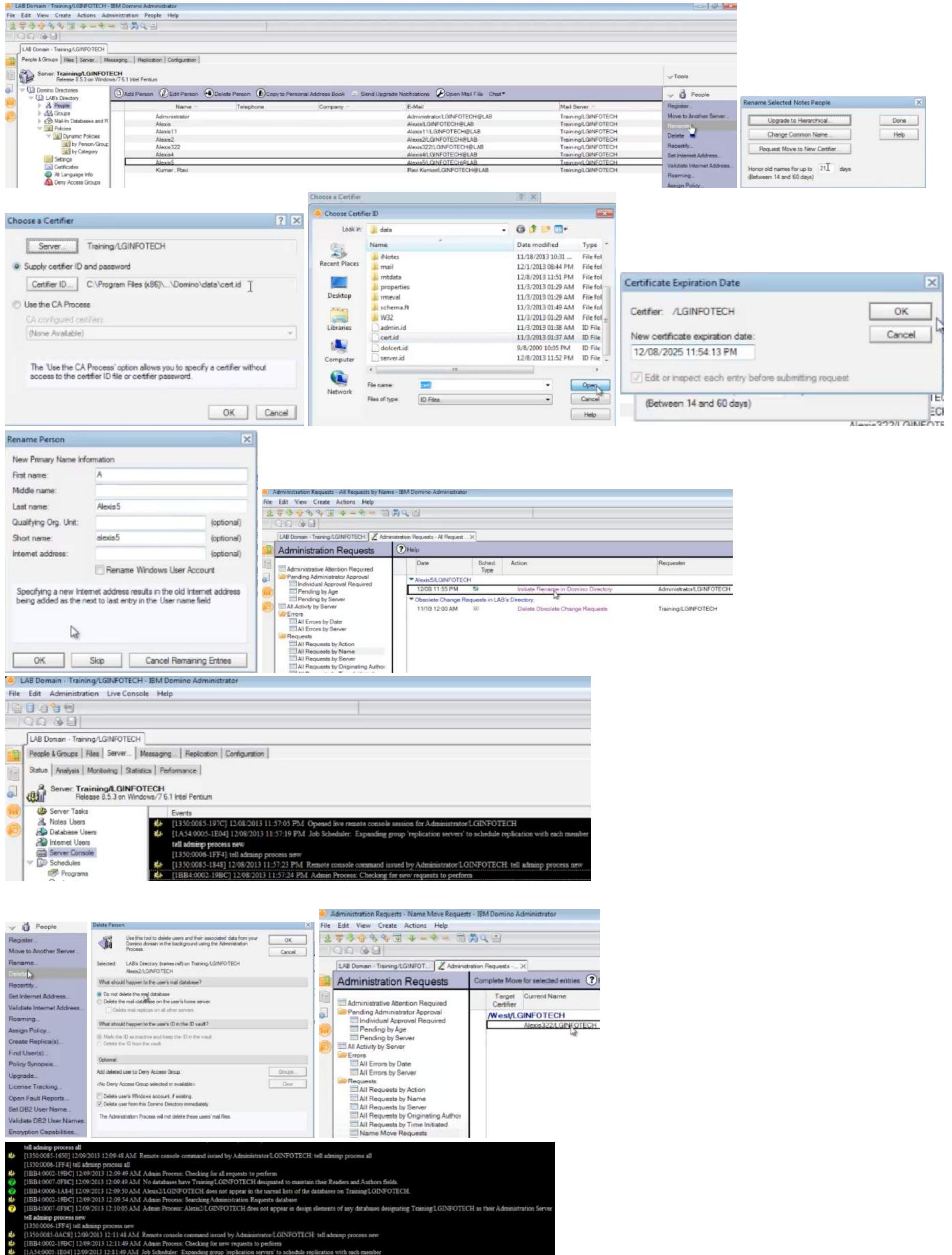
Name change requirements

- The administration process(**Admin4.nsf**) automates a name change by propagating the change throughout the Lotus domino domain. The administrator needs at least:
 - Editor with create documents access or [UserModifier] role to the Lotus Domino Directory (**names.nsf**)
 - Author with create documents access to the certification log (**certlog.nsf**)
 - Author access to the Administration requests application (**admin4.nsf**)
 - Access to the original certifier ID

Advantages of Admin Process

- The Admin Process method is preferable to edit the Person document because:
 - The automated method updates group and ACLs.
 - Using the administrator tools creates a record in the certification log.

Activity: Change a User Common Name



41 - Managing Groups

Managing Groups

- Creating Groups

- Renaming Groups
- Deleting Groups
- Changing Group Membership

Groups

Groups are lists of users, groups and servers that have common traits. Groups are useful for mailing list and access control list. Using groups can simplify administration tasks.

Default Groups

- **LocalDomainServers:** All Servers in the current domain. Lotus Domino automatically adds servers that you register in the current domain to this group.
- **OtherDomainServers:** All servers that are not in the current domain.

Group Types

- Multi-purpose
- Access control list only
- Mail only
- Servers only
- Deny List only

Nested Groups

- Group maintenance is made easier by including groups within other groups(nesting one inside the other).

Managing Groups

- Creating new groups
- Renaming or editing existing groups
- Deleting groups
- Changing an individual user group membership

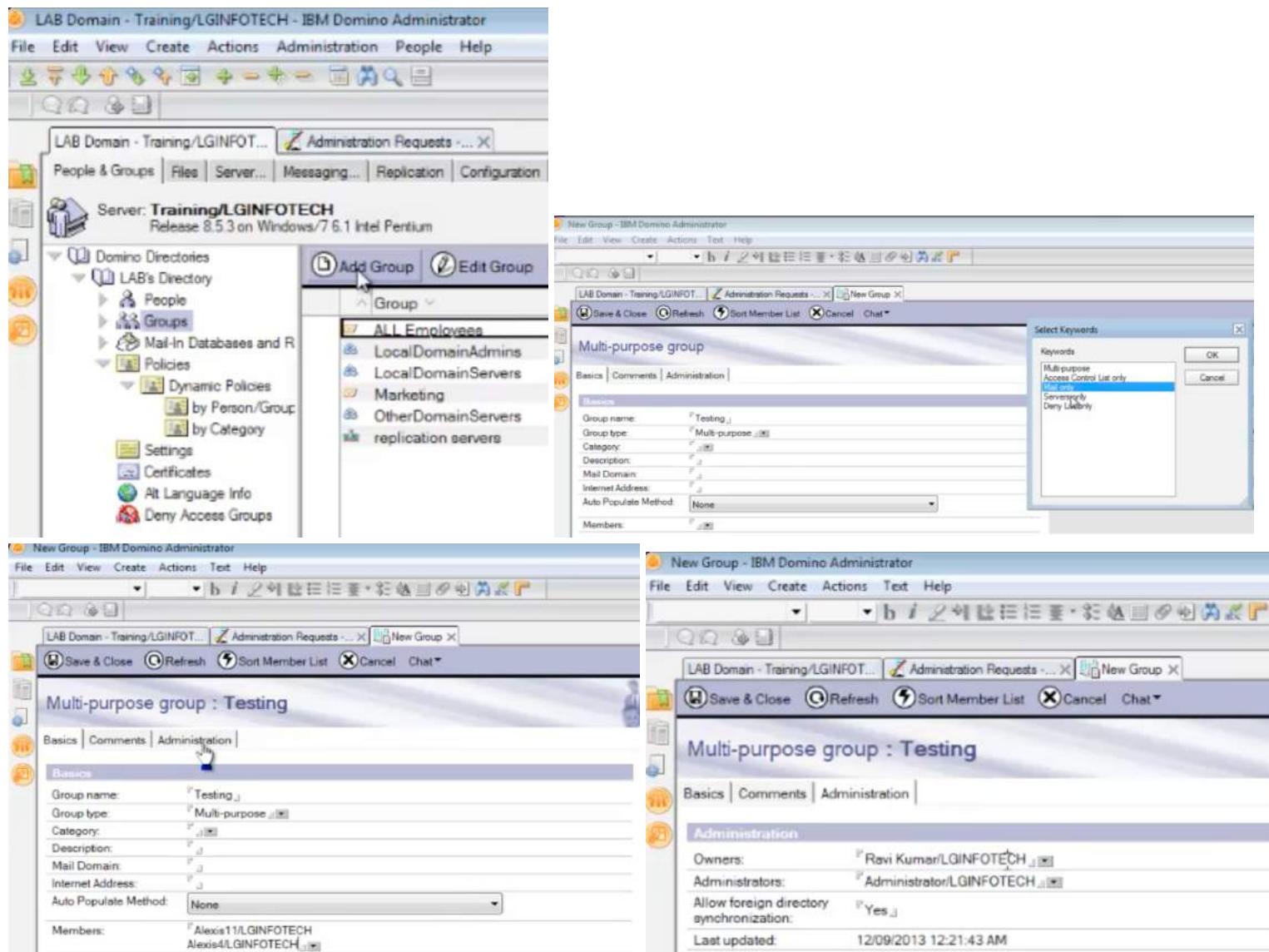
Group Naming Considerations

There is no limit to the number of names in a group. However, the total number of characters used for names in the group cannot exceed 325 KB.

Renames group in	When	Result
Lotus Domino Directory	1 hour	Updates the group name in the Lotus Domino Directory, except in Person documents.
ACL	1 hour	Each server in the Domino Directory updates the group name ACLs of applications for which it is an Administration server.
Person document	Daily	Updates the name in the Domino Directory person documents
Reader/Author fields	Weekly	Each server in the domain updates the group name in Reader/Author fields of the applications for which it is named as administration server and that have specified the ACL option Modify all reader/Author fields

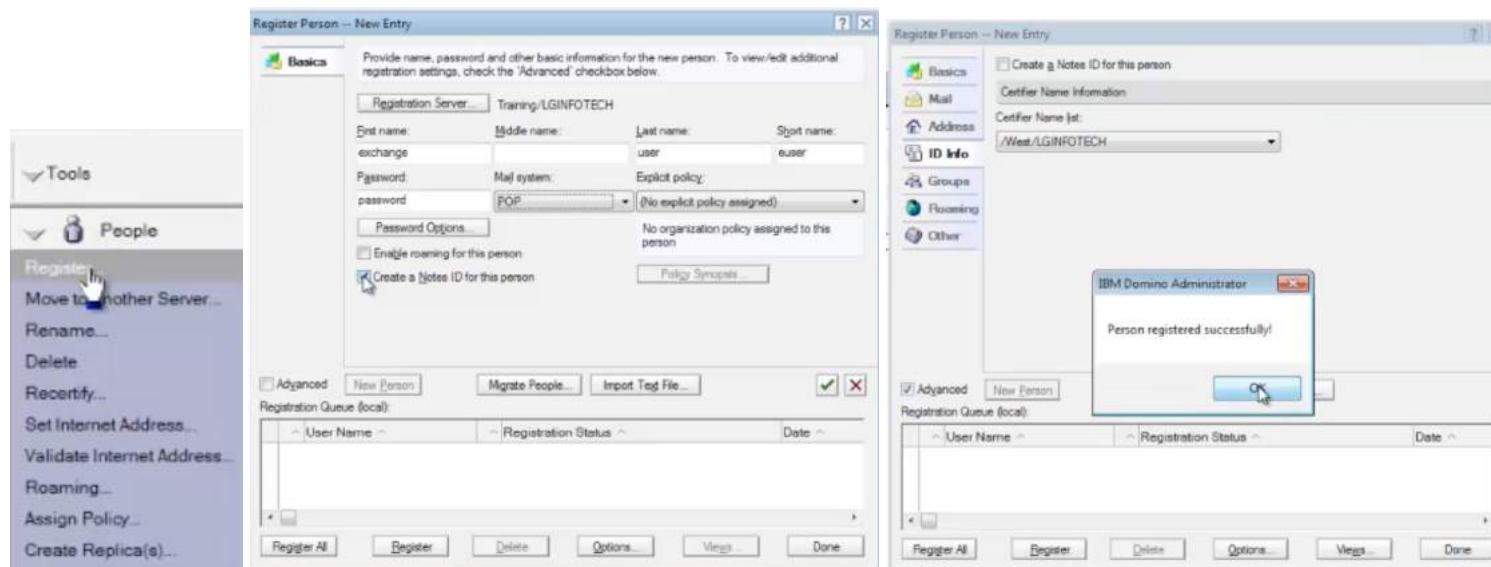
Registered and non-registered users

- Registered users : Users in the Domino Directory or a trusted directory with both:
 - A valid user name and password
 - A valid Internet(X.509) certificate for Internet Authentication or encrypted mail (optional)
- Non - registered users: Users who do not have an Internet(X.509) certificate, Internet Password, or are not listed in the Lotus Domino Directory or a trusted directory.



42 - Managing IBM Lotus Notes and Non-Notes Clients

Activity: Registering the non-Notes Users



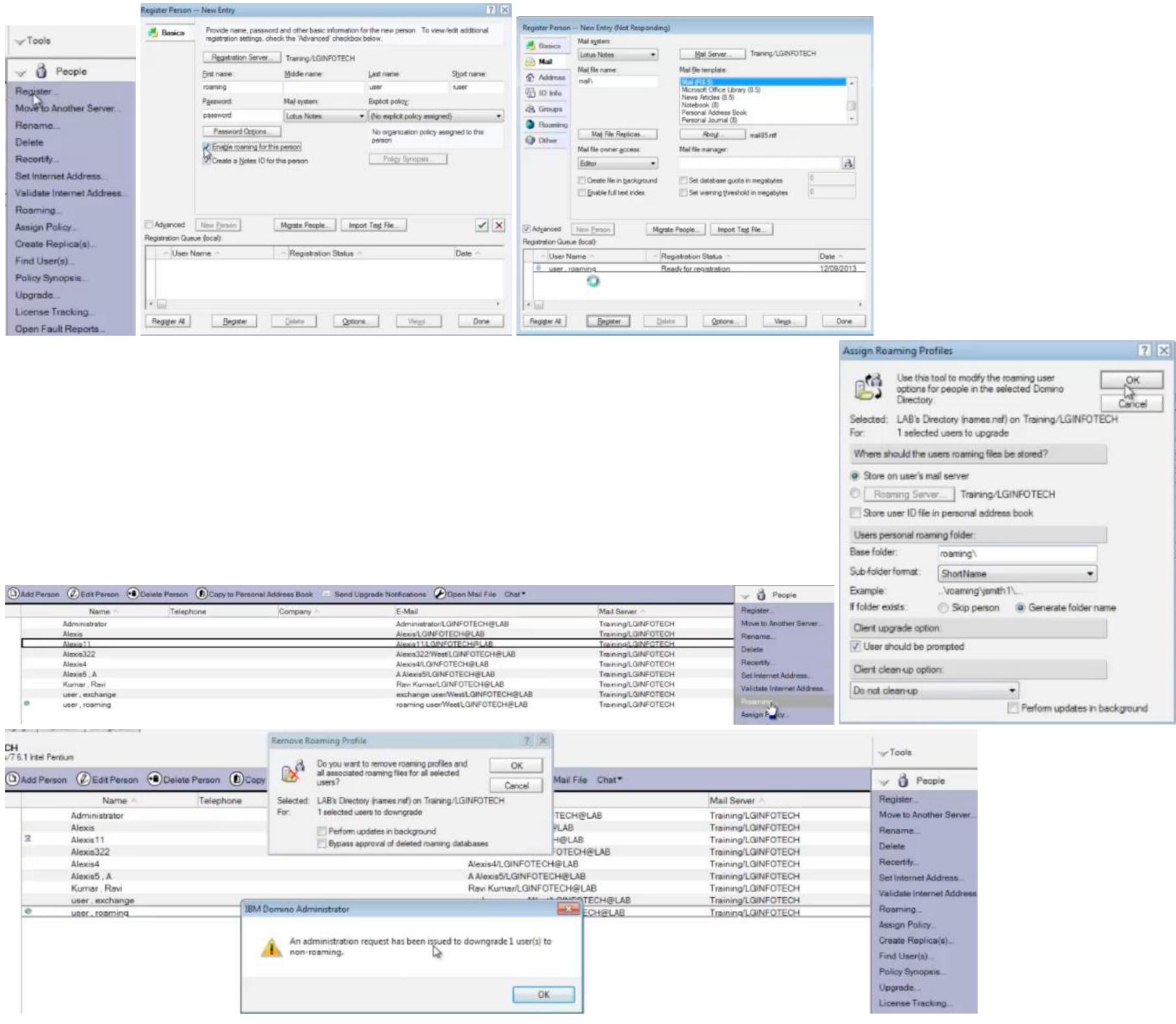
Managing Roaming Users

- Lotus Notes Roaming user is a user who accesses Lotus Notes from more than one client location.
- When a roaming user logs on from a different Lotus Notes Client, Lotus Domino automatically retrieves the user ID file, contacts, bookmarks and journal from the roaming user server.

Advantages of Roaming

- Easier upgrade and service of machines, due to information stored on the server
- Automatic remote clean-up of machines
- Centrally located user information
- Increased mobility
- Easier access to information
- Secure information

Activity: Create a Roaming User



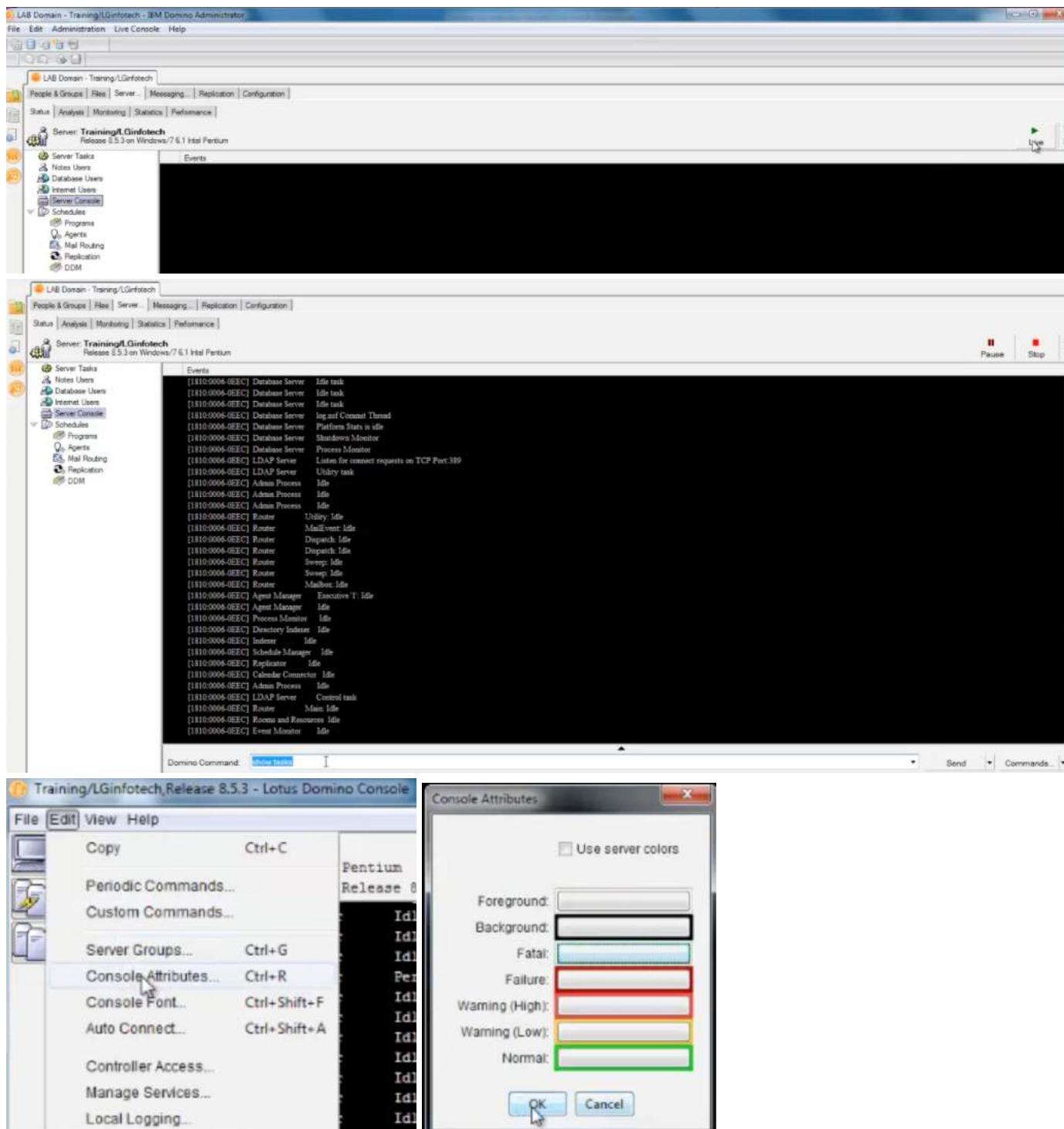
43 - Managing Servers

Managing Servers

- Use the server console window
- Define backup processes
- Enable transaction logging
- Manage disk space
- Enable view logging
- Log and analyze activity data
- Automate server tasks

Server Console Window

Domino server Console displays in a window during startup.
Admins can issue commands using this console window.



Backup Process

After determining and documenting the current infrastructure, perform a complete backup of servers before making any changes.

Backup Methods

There are two choices for Backup :

- Backup using traditional method of making copies of files.
- Backup using transactional logging: Transaction logging creates log files that capture application changes, allowing faster applications updates and easier backup.

Using Transaction Logging

A single transaction is series of changes made to an application on a server. For example, a transaction might include opening a new document, adding text and saving the document.

Transaction logging allows the capture of system application changes to a log. If a system or media failure occurs, applications are recovered using the transaction log and a vendor independent backup utility. However, not all vendor independent backup utilities are compatible with transactional logging. Use transaction logging to increase data integrity and efficiency.

Transaction Logging Benefits

- In most cases, there is no need to run a fixup to recover applications after a server crash.
- Provides less possibility or corruption of applications.
- Allows application updates to disk during high server activity
- Simplifies daily backup procedures.

Fixup

- Fixup is a server task that fixes any inconsistencies resulting from partially written operation after a server failure, power failure, or hardware failure.
- Application corruption is much less likely to occur in applications for which transaction logging is enabled

Database Instance IDs

When transaction logging is enabled, lotus domino uses a unique application identifier, the Database Instance ID (DBID), to match the transaction with a specific application.

DBIID Reassignments

Lotus Domino assigns a new DBIID to an application under the following circumstances:

- Transaction logging is enabled for the first time.
- The log path or maximum log size is changed after initial setup and use
- An application was moved from one logged server to another logged server, or from a server not enabled for logging to a logged server.
- The compact task is running with an option other than **-b**
- Fixup task is running on corrupt applications

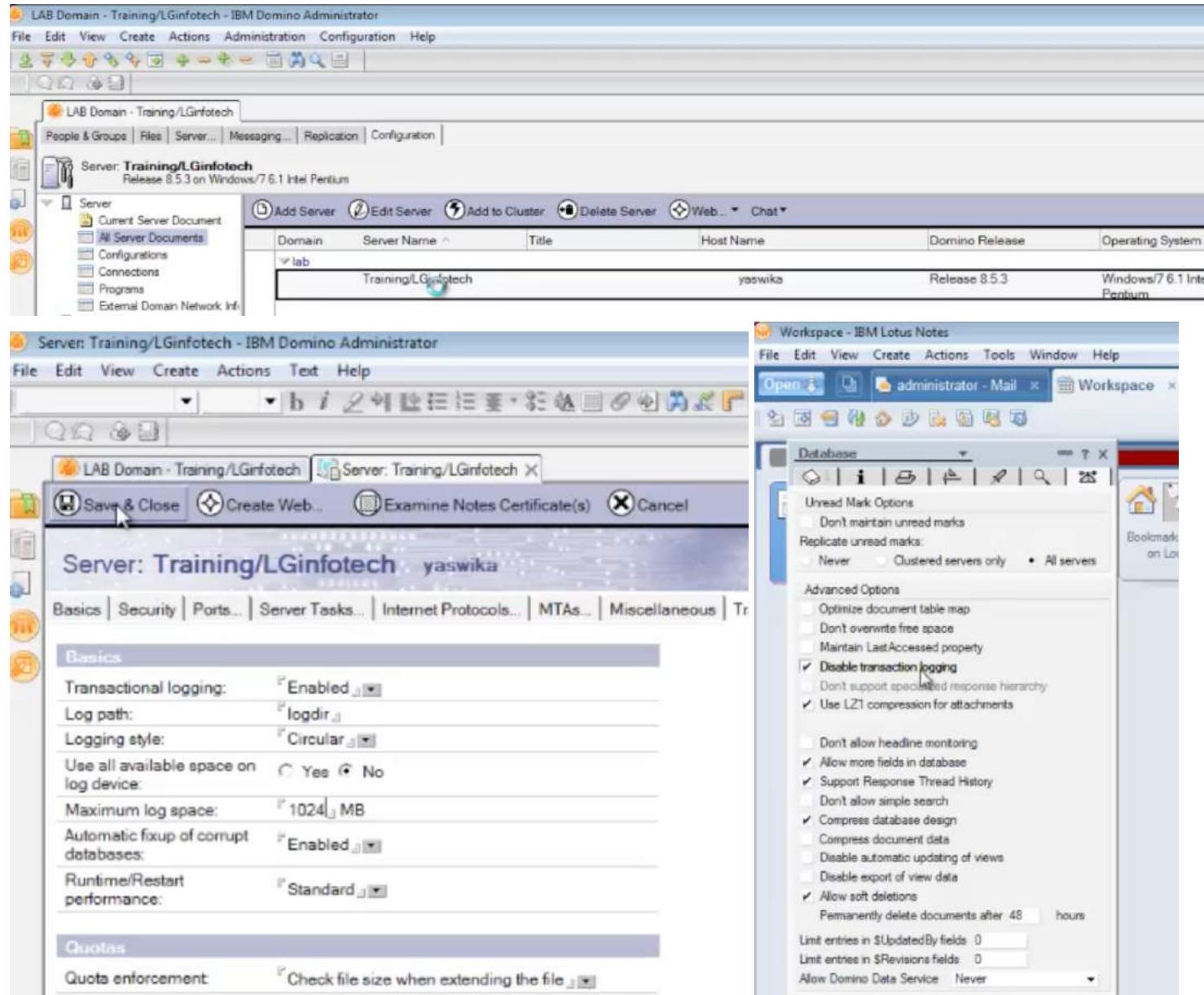
Transaction Logging Styles

Style	Description
Circular	Transaction log files are reused in a cycle based on size. The size can be from 192 MB to 4 GB. As defined in the Server document. Old Transaction logs are overwritten.
Archive	Transaction log files are not overwritten. New log are created as needed and occasionally older inactive logs are archived to archive media. Active logs remain in the log directory.
Liner	Transaction log files are reused in a cycle with no size limit. Administrators back up and recover without archiving logs to media. The logs are reused, extending the size of the log, which provides a longer window of time for standard application backup recovery.

Log Path

C:\Programfiles\BM\Lotus\Domino\Data\Logdir

Activity: Enable Transaction Logging



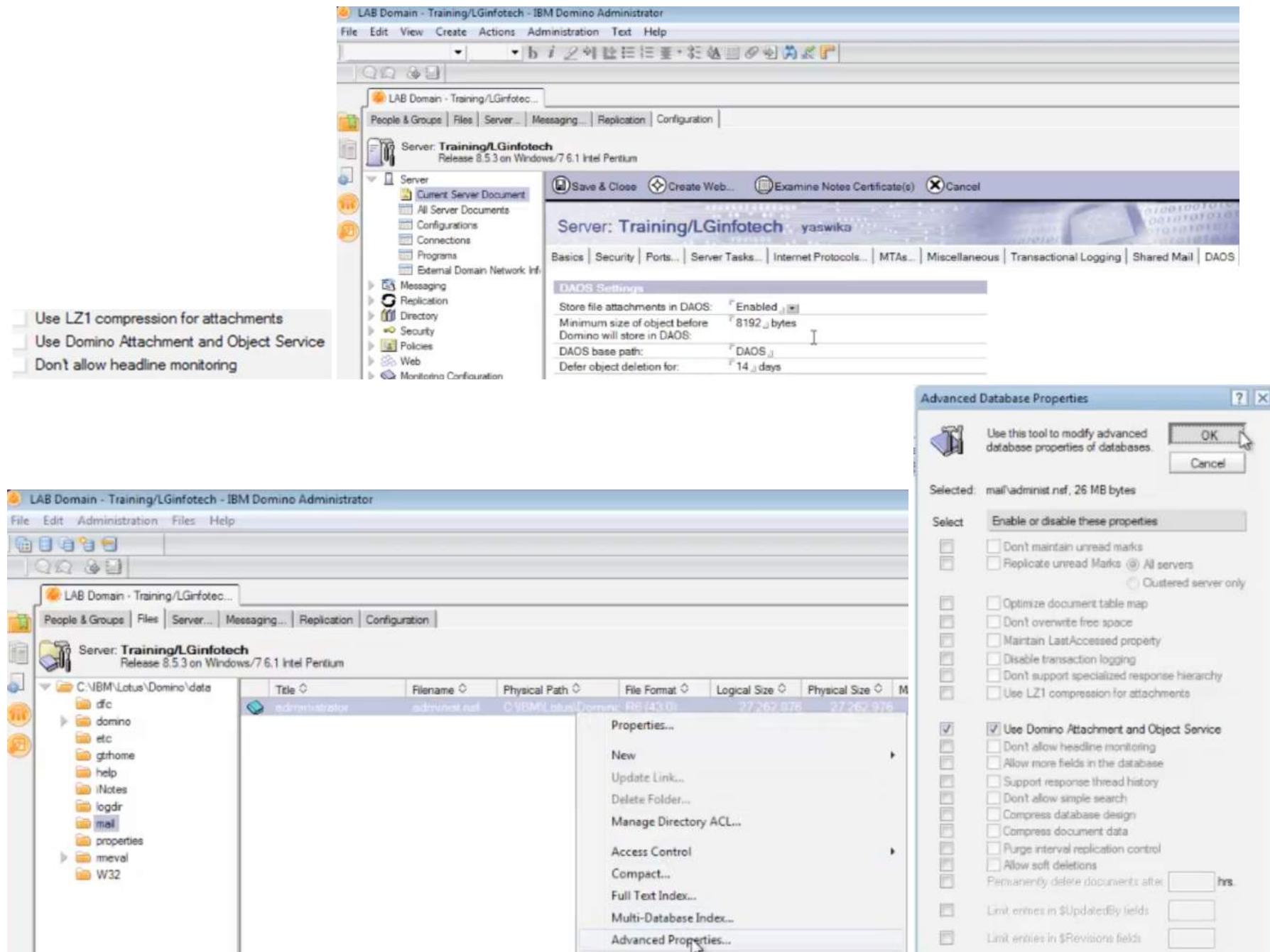
Managing Disk Space

Lotus Domino Attachment and Object (DAOS) :

- When an attached file is large and the message containing it is broadcast to thousand of users, creating a separate copy of the message for each recipient could require several gigabytes of disk space.
- DAOS feature in Domino reduces total cost of ownership and helps customers with green computing by storing all file attachments in a separate repository on a server and retrieving them by reference.

Implement DAOS

- In Server Document, Click on the **DAOS** tab and, in the **Store file Attachment** in the DAOS field, select Enabled
- In the **Minimum size of object before Domino will store in DAOS** field, type 8192
- In the **DAOS base path** C:\ProgramFiles\IBM\Lotus\Domino\Data\DAOS
- Save and Close the **Current Server Document**
- Enable DAS for all mail files
- Select all mail files from Files tab. DB Properties, Advanced Tab, Select DAOS, Restart Server



[View Logging](#)

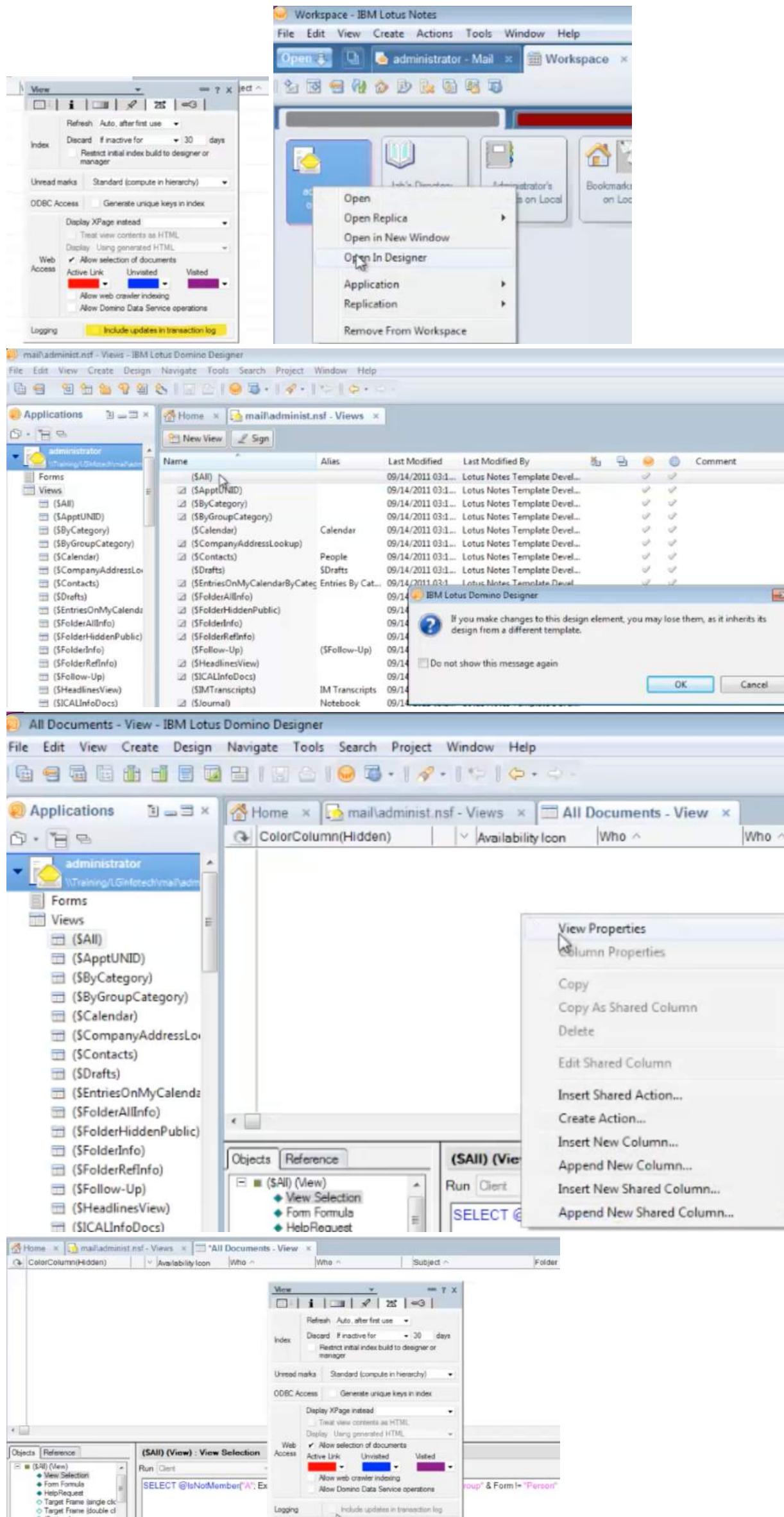
View logging is an extension of transaction logging, with view logging enabled, views do not require rebuilding during server restart because the information captured in the Transaction Log and restored from that log, resulting in less server downtime.

[View Log Considerations](#)

- Individual view must have view logging enabled
- Domino 6 or later applications can use view Logging
- Criteria to use when deciding to enable view logging
 - Traffic volume
 - Visibility
 - Business Criticality

[Enable View Logging](#)

- Open Mail file in Domino Designer
- Open (\$All) view
- Open view properties



Automating Server Tasks

- Lotus Domino server requires regular, scheduled maintenance to function properly.
 - Updall
 - Compact

Server Task

Server Task	Description
Updall	Updall performs the following functions: <ul style="list-style-type: none"> Updates any view indexes or full-text search indexes that <ul style="list-style-type: none"> Need updating Are corrupted Purges deleting stubs from application Discards view indexes for views that have been unused for 45 days, unless otherwise specified in the application design.
Compact	Compact performs the following functions: <ul style="list-style-type: none"> Recovers unused space after documents are deleted. Reduces the file size of an application
Liner	Transaction log files are reused in a cycle with no size limit. Administrators back up and recover without archiving logs to media. The logs are reused, extending the size of the log, which provides a longer window of time for standard application backup recovery.

Type of Compaction

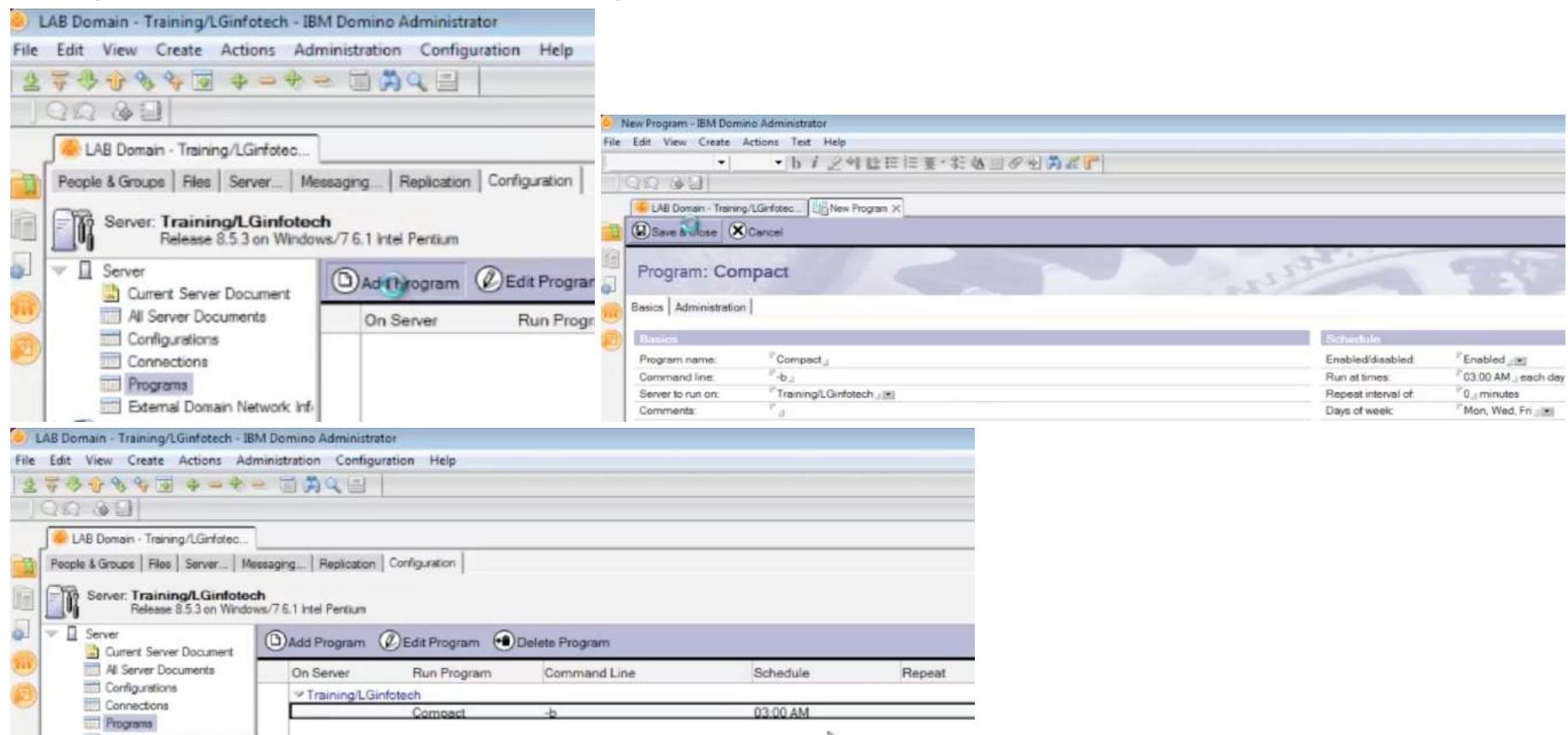
The server tasks listed in the previous table can be issued using many different options depending on what the administrator wants done. For example, there are three types of compaction:

- In-place compacting with space recovery only
- In-place compacting with space recovery and reduction in file size
- Copy-style compacting

Program Document

- A program Document is used to routinely run a Server Task at a certain time.
- The advantage of using a program document versus the notes.ini file to automate server tasks is that an administrator can centrally create program documents in the lotus domino directory to automate server tasks on all or a specific number of servers in the domain.

Activity: Automate a Compact Task with a Program Document



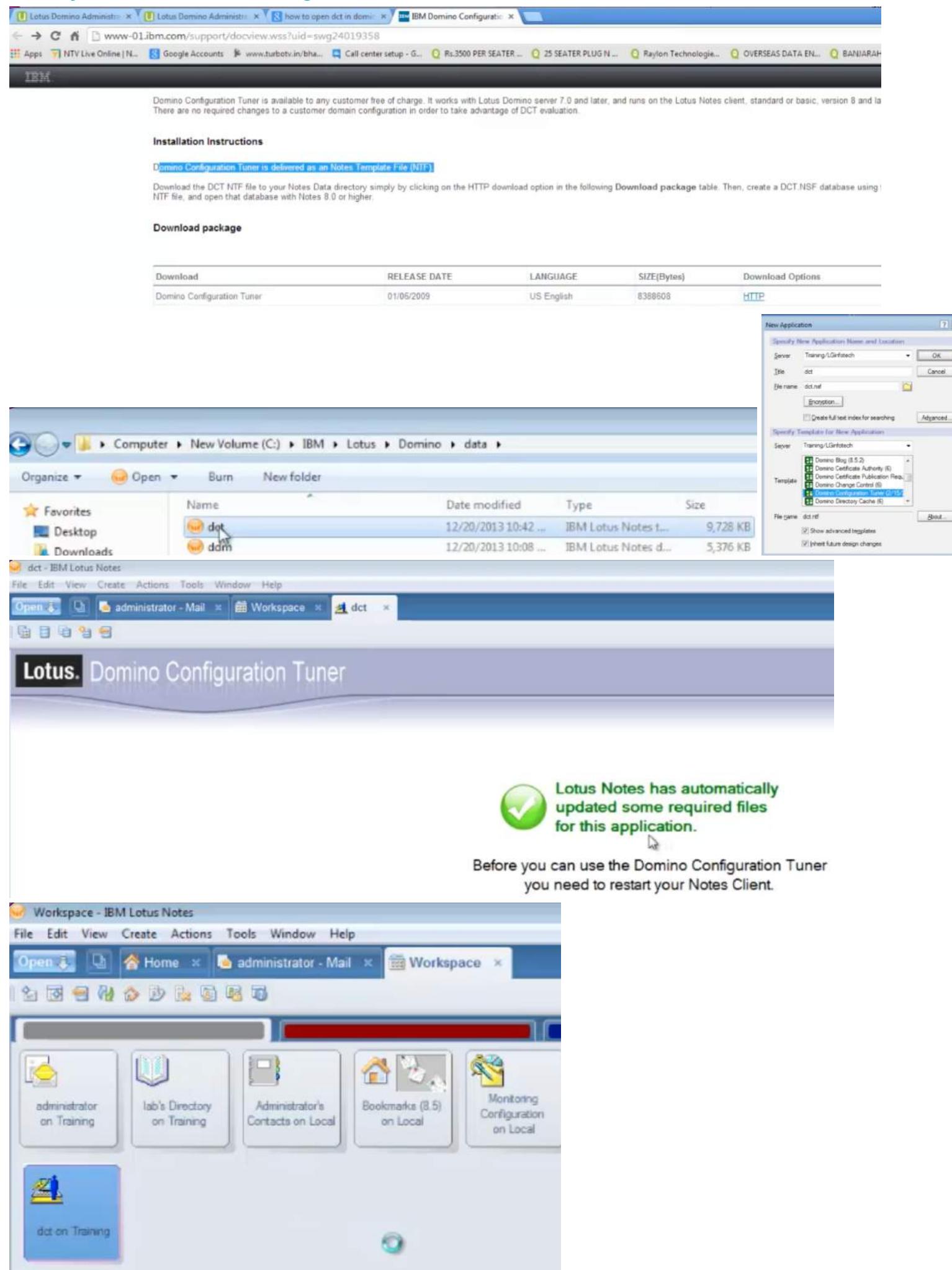
Domino Configuration Tuner (DCT)

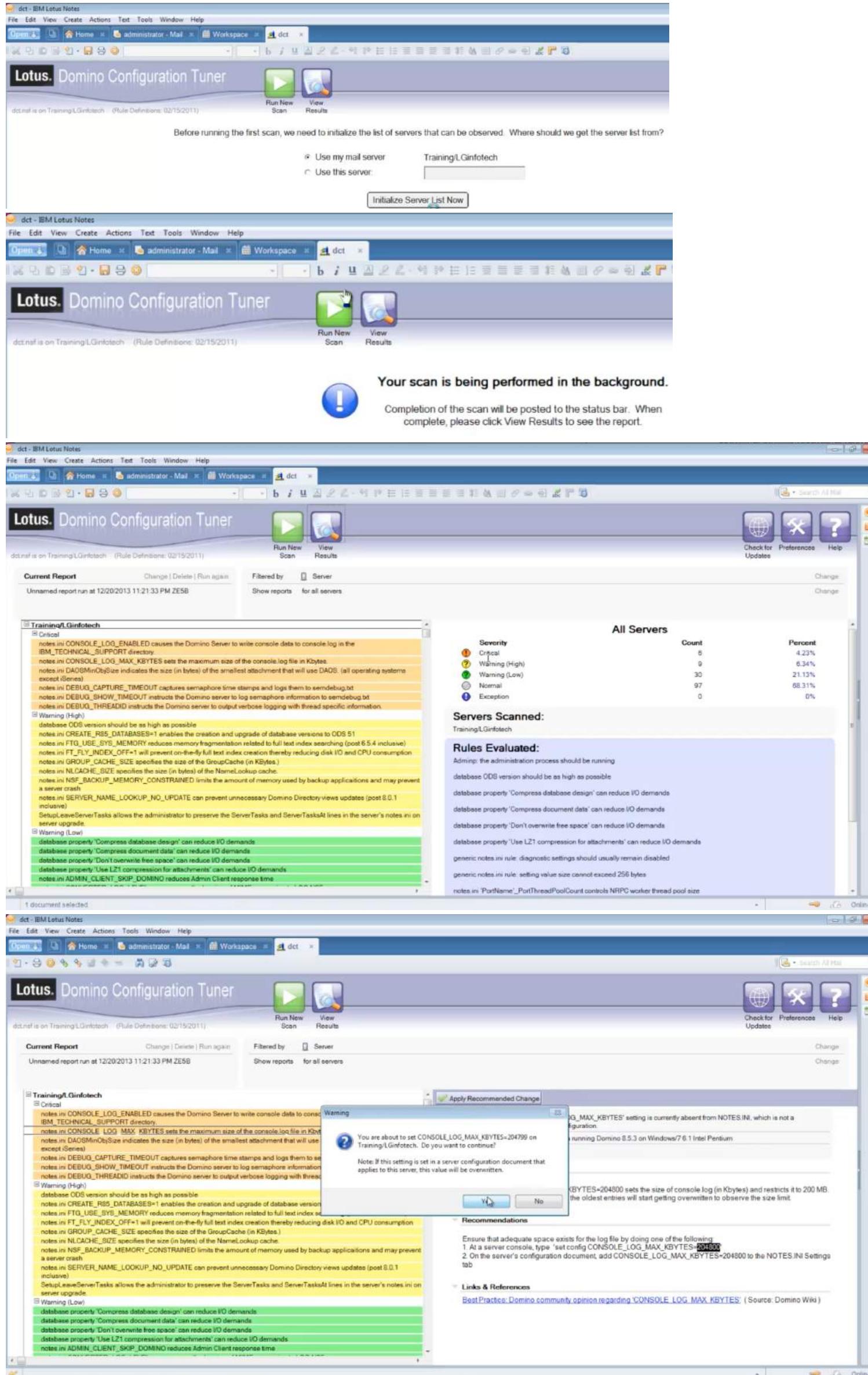
- Lotus Domino Configuration Tuner (DCT)** is a simple self service configuration analysis tool that can help you implement stronger service installations to experience better performance.
- DCT** evaluates server settings and generates reports that explain issues, and provides references to supporting publications

Benefits of Using DCT

- Self-service configuration analysis to ensure the most robust lotus notes installation and better overall performance.
- Best practice analysis along with worst practice disclosure.
- Configuration issue identification to aid in the reduction of the cost of ownership.
- Out-of-range and unexpected values reporting to prevent undefined behavior.
- Domino server documents, the NOTES.IN file, and advanced database properties analysis.
- Server adjustment suggestions to improve server performance

Activity: Evaluate server settings with DCT





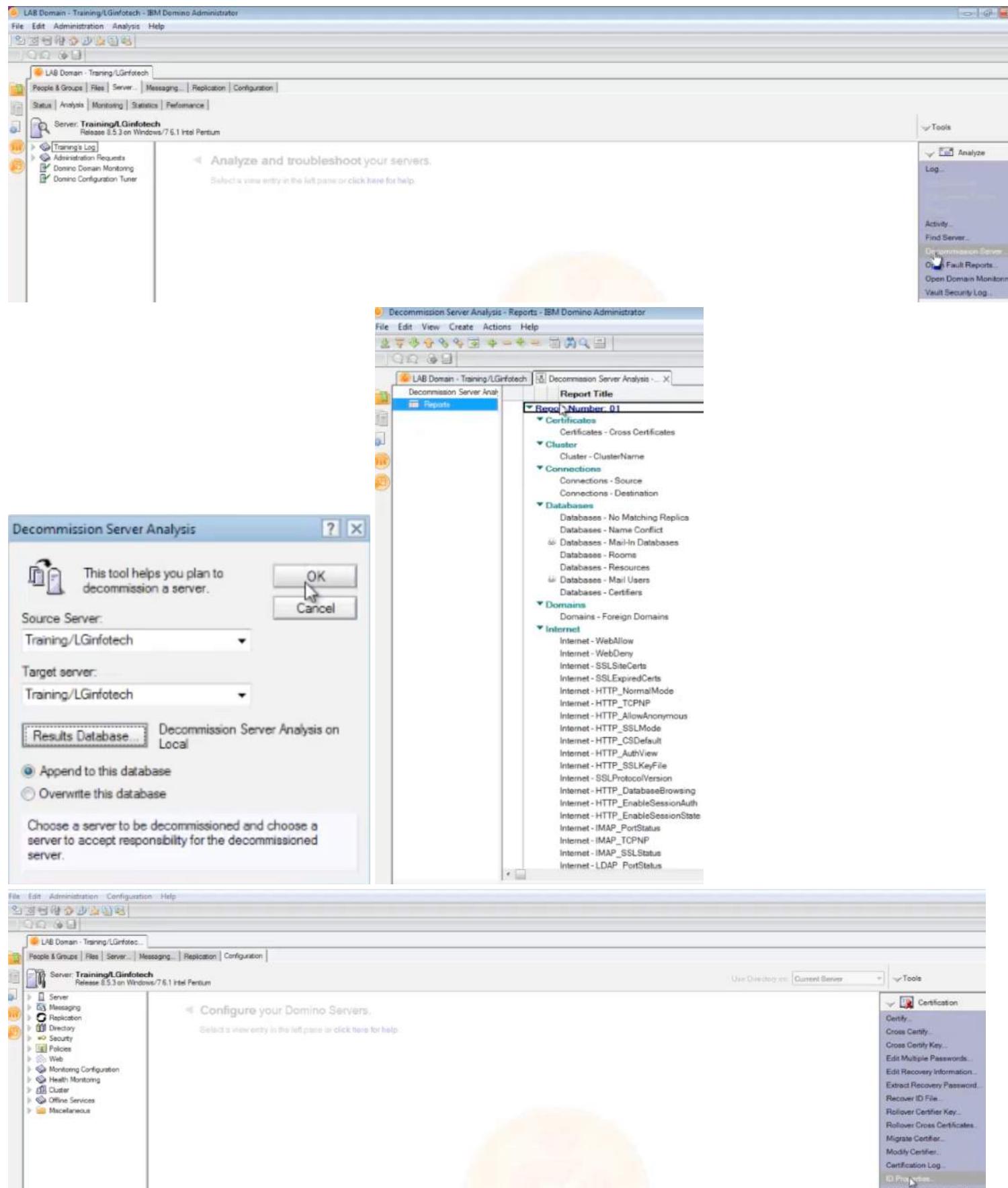
44 - Updating Servers

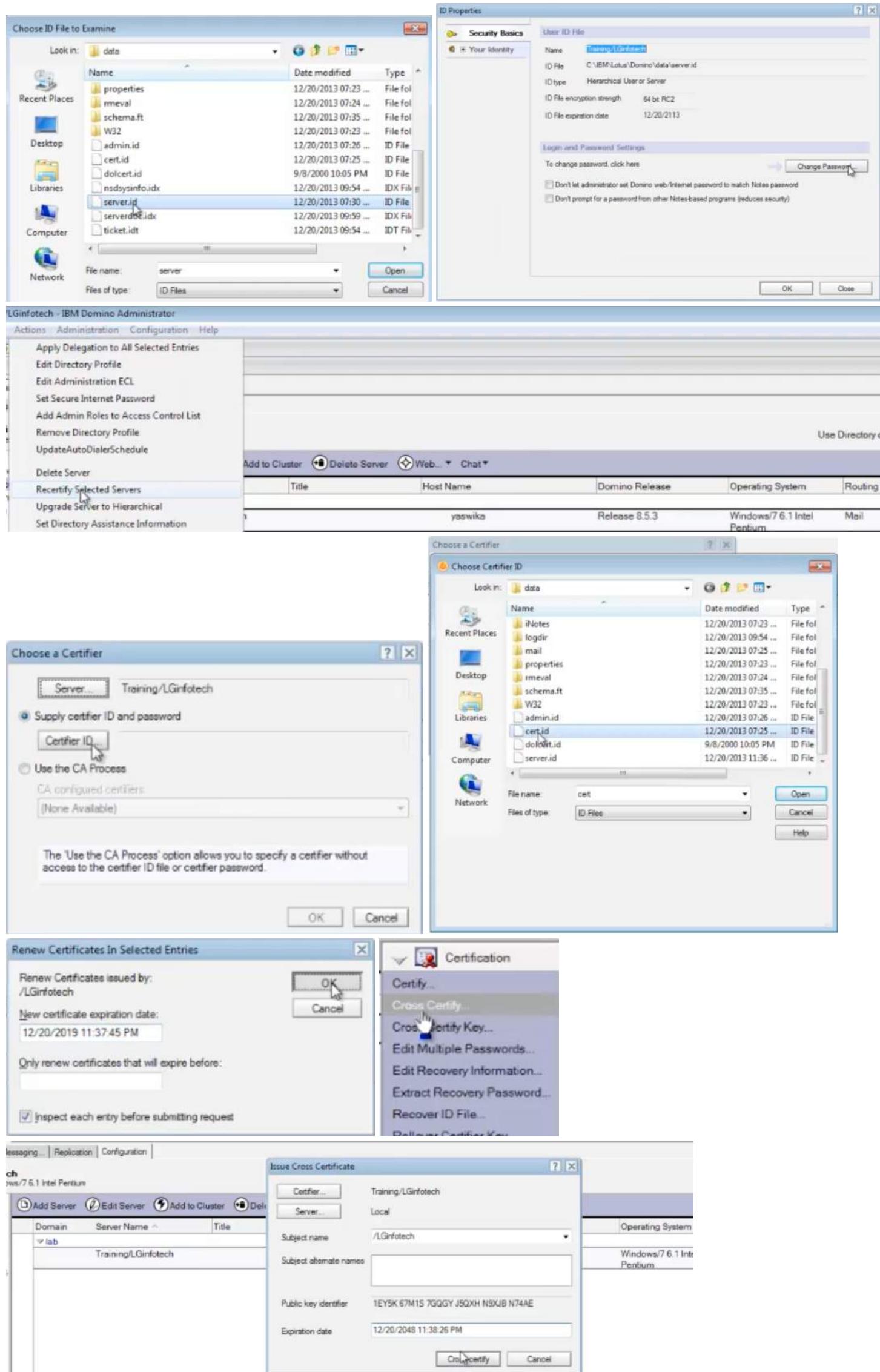
Decommissioning Server

- Administrators may find it necessary to place a server out-of-service. For example, a piece of server equipment has become outdated, and will be retired (decommissioned)

Analyzing the effect of decommissioning a server

- Click on Server Tab -> Analysis Tab.
- Click Tools -> Analyze .> Decommission Server.
- Select the Source Server and Target Server.
- To change the location or file name for the results application:
 - Click Results Database
 - Select the Server to store the results application
 - Enter the Title and file name for the results application.
 - Click OK.
- Select one of the following options:
 - Append to this database
 - Overwrite this database.
- Click OK.





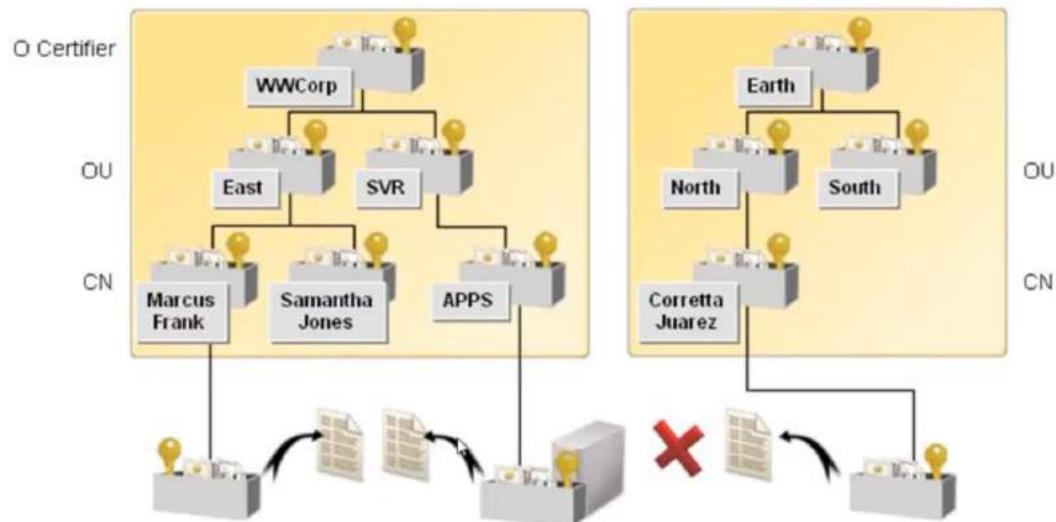
Authenticating with other organizations

If two companies wish to share server access to route mail or replicate applications, the two companies need to cross-certify. Cross-certification is required if two entities, servers or users, do **not** share a certificate in common.

Cross Certification

- Cross Certification allows servers and users with no common ancestral heritage to authenticate. Two important facts about cross-certification are:
 - Cross-certification is a two-way process. Both organizations need to cross-certify each other.

- Cross-certification can be to or from an organization, organizational unit, server, or user.



Cross-Certification Process

- Cross-certification requires two-way trust. During the cross-certification process,
 - each organization cross-certifies an ID from the other organization.
 - each organization stores the cross- certificate it issues in the Lotus Domino Directory.

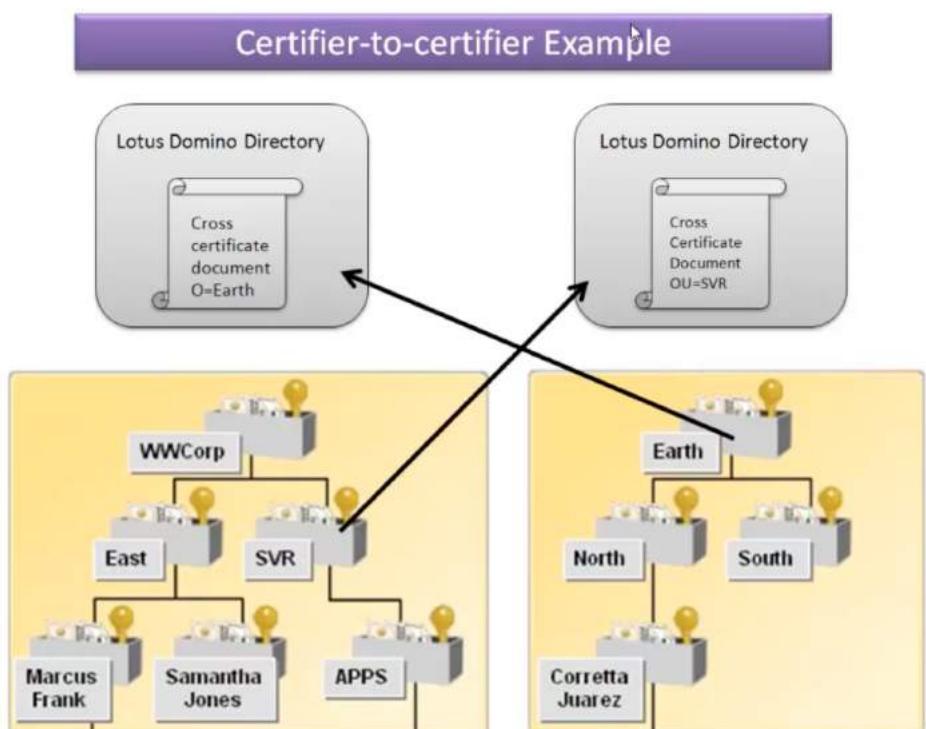
Cross-Certification does not

- Alter either organization hierarchical structure, any server or user distinguished name, or any ID.
- Necessarily give the other organization access to all your servers.
- Override server access control
- Replace ACLs as the primary control mechanism for application access.

Certifier-to-Certifier Cross Certification

A Company can issue cross-certification between organizations or organizational unit certifiers. This type of cross-certification is appropriate when:

- Company A wants to grant access to multiple servers in its organization to specific branch of Company B.
- Company A wants to have access to a particular branch of Company B
- Two organizations merge.



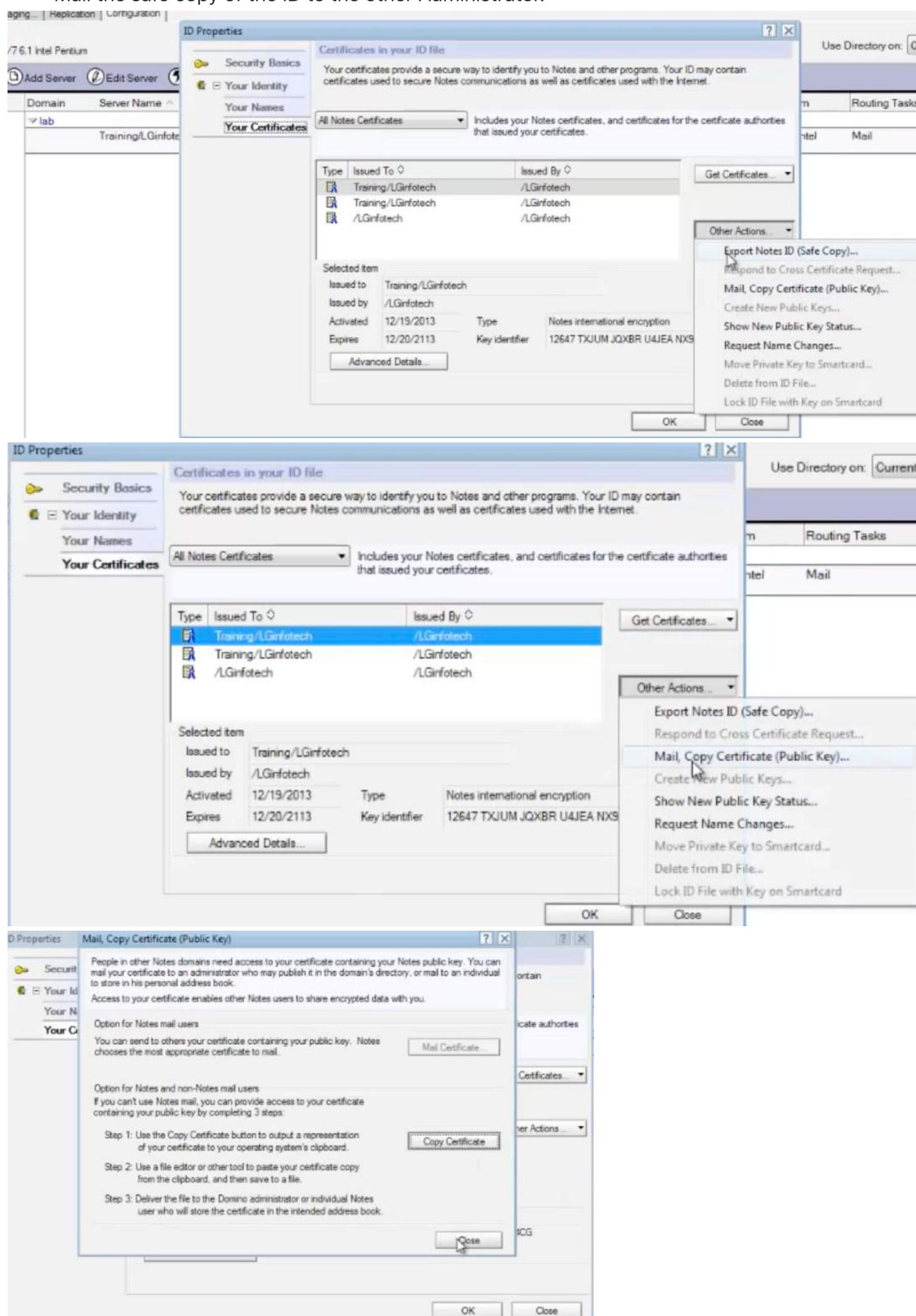
Safe Copy

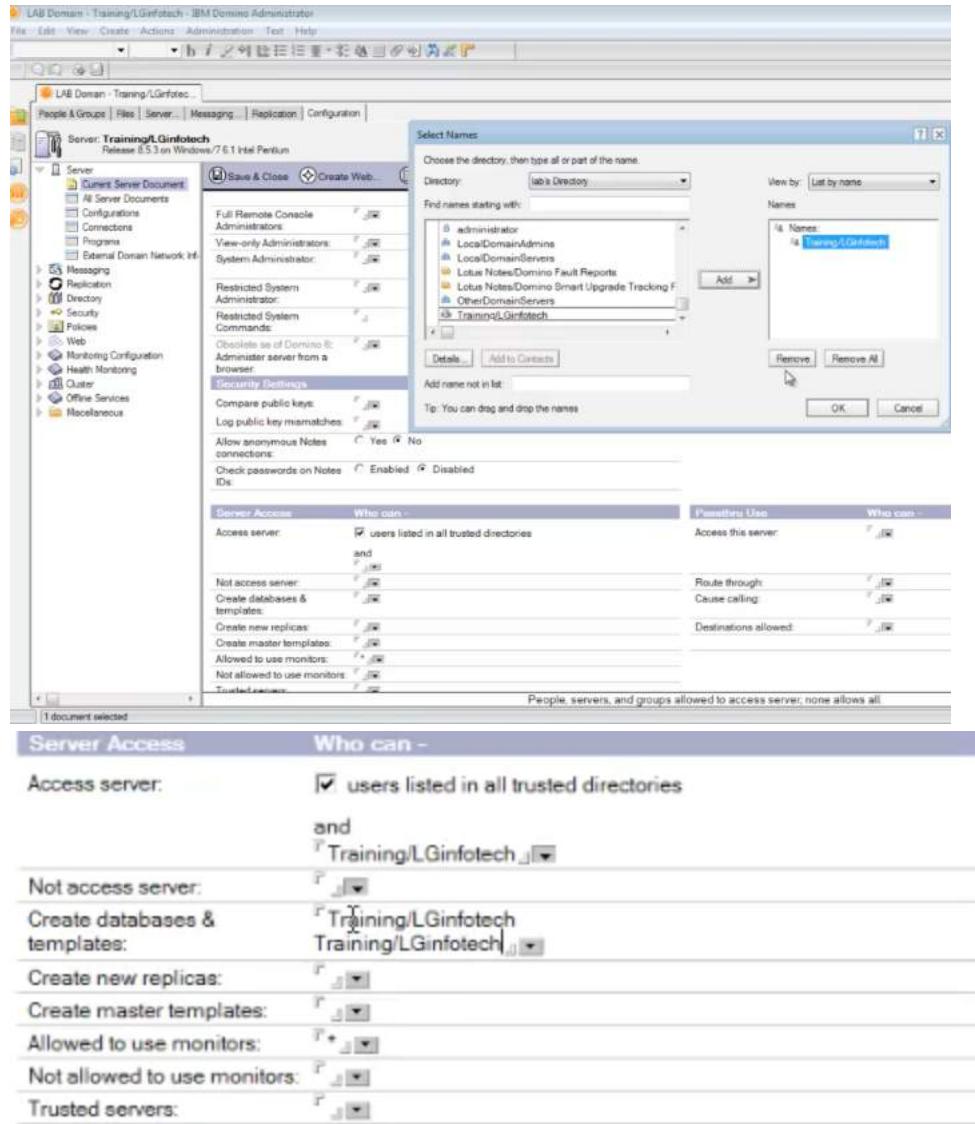
A safe copy of an ID is a copy of the ID without the private and encryption keys. The safe copy contains only the user information, public key, and certificates. No password is required to access the ID; however, the ID cannot be used to authenticate within the Lotus Domino Environment.

Creating and mailing a safe copy of the ID File

- Click the configuration tab.
- Click Tools -> Certification -> ID Properties
- Select the ID file, and click open.
- Enter the ID password, and click "OK".
- Click the Your Identity section -> your certificates tab

- Click other actions, and then click Export Notes ID (Safe Copy)
- Enter a file name for the safe ID, and click Save.
- Click Close.
- Mail the safe copy of the ID to the other Administrator.





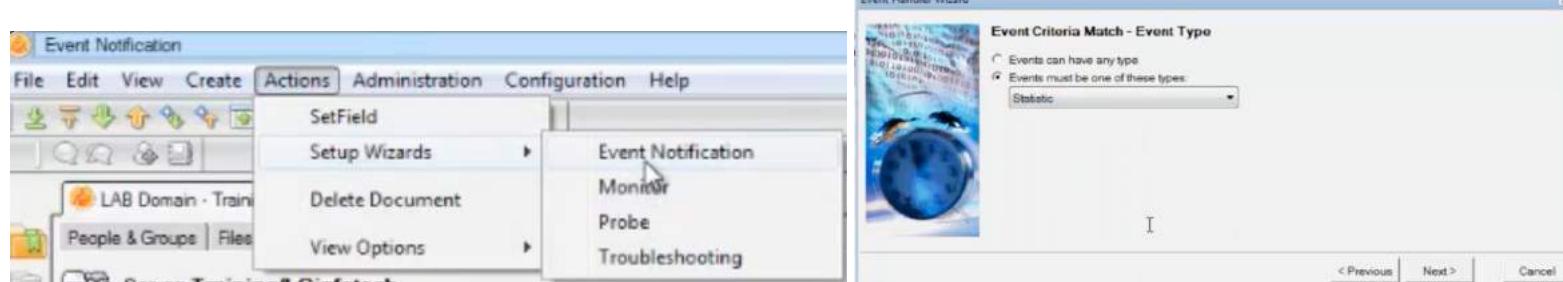
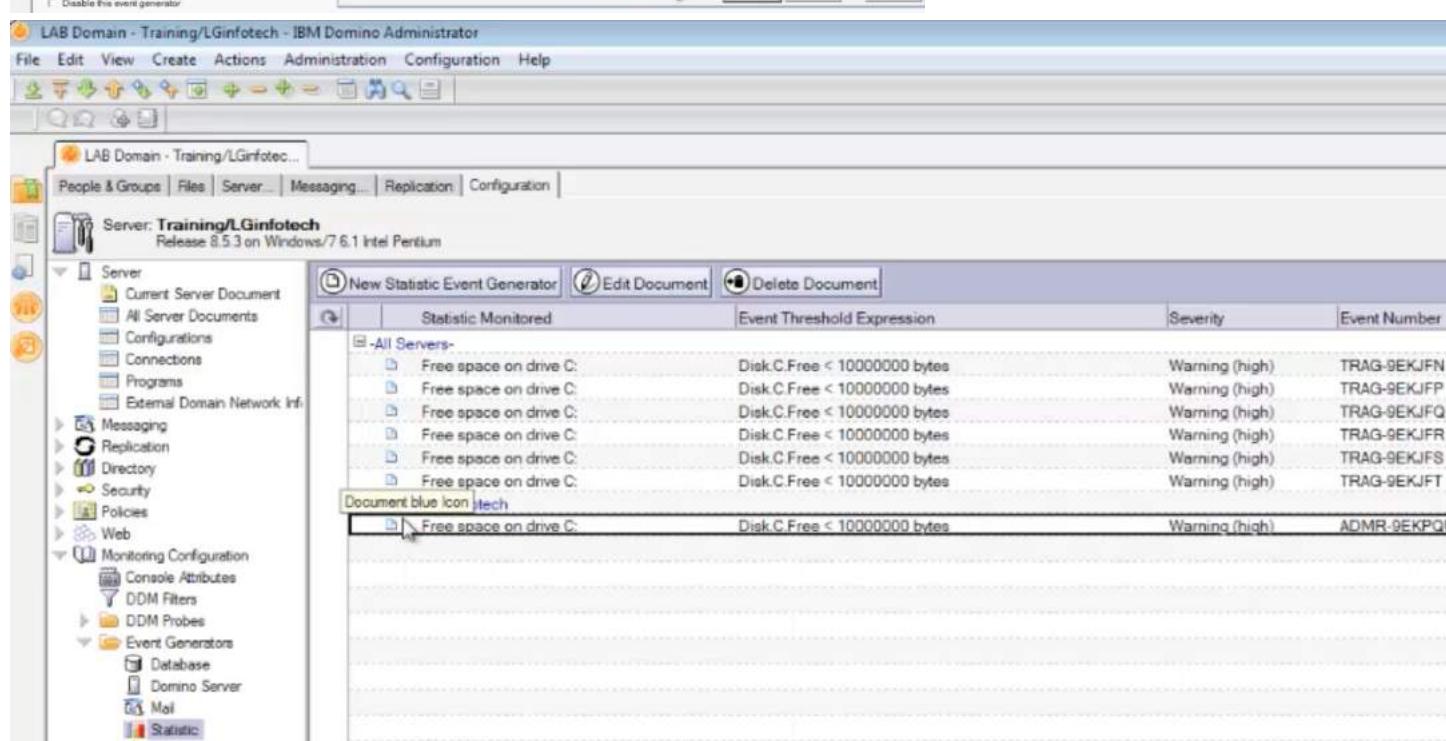
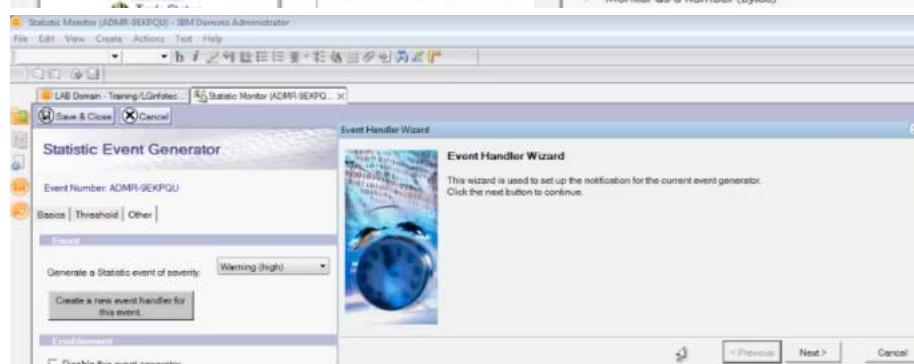
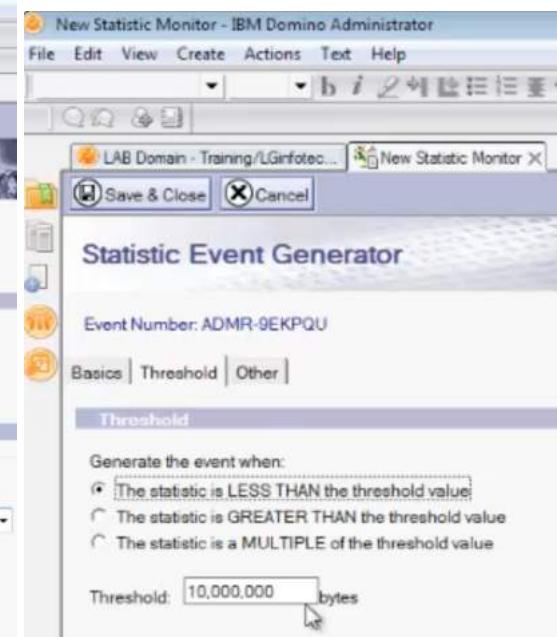
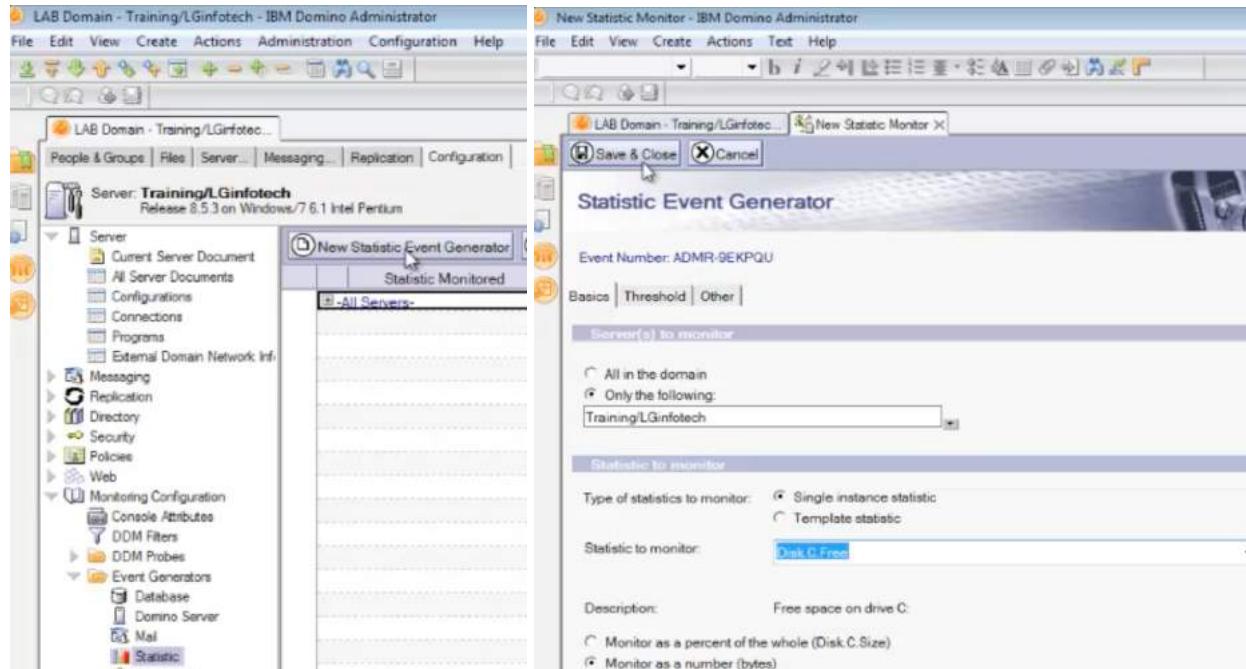
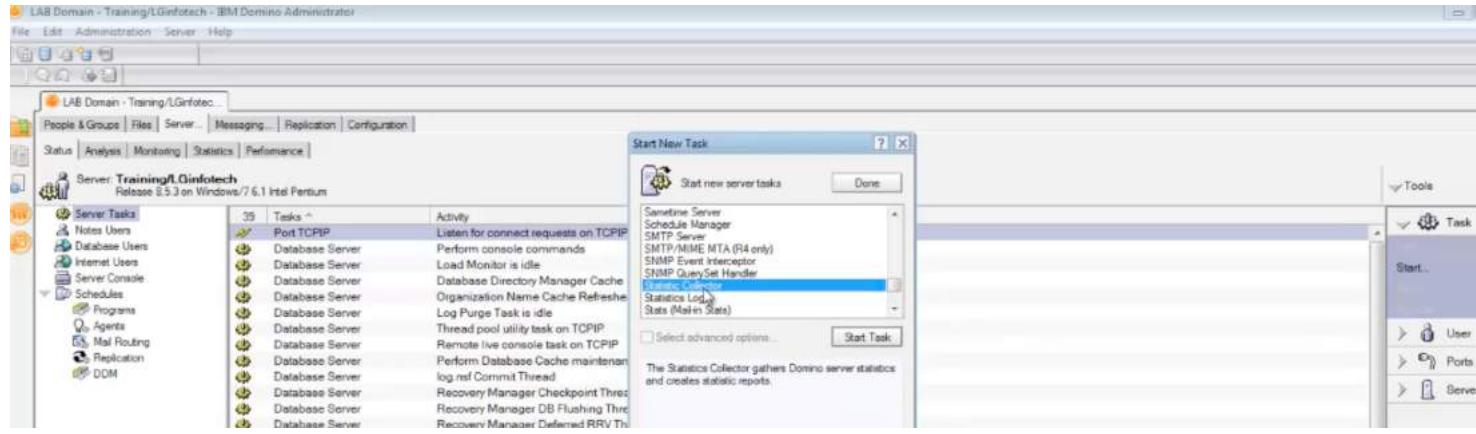
[45 - Setting Up Server Monitoring](#)

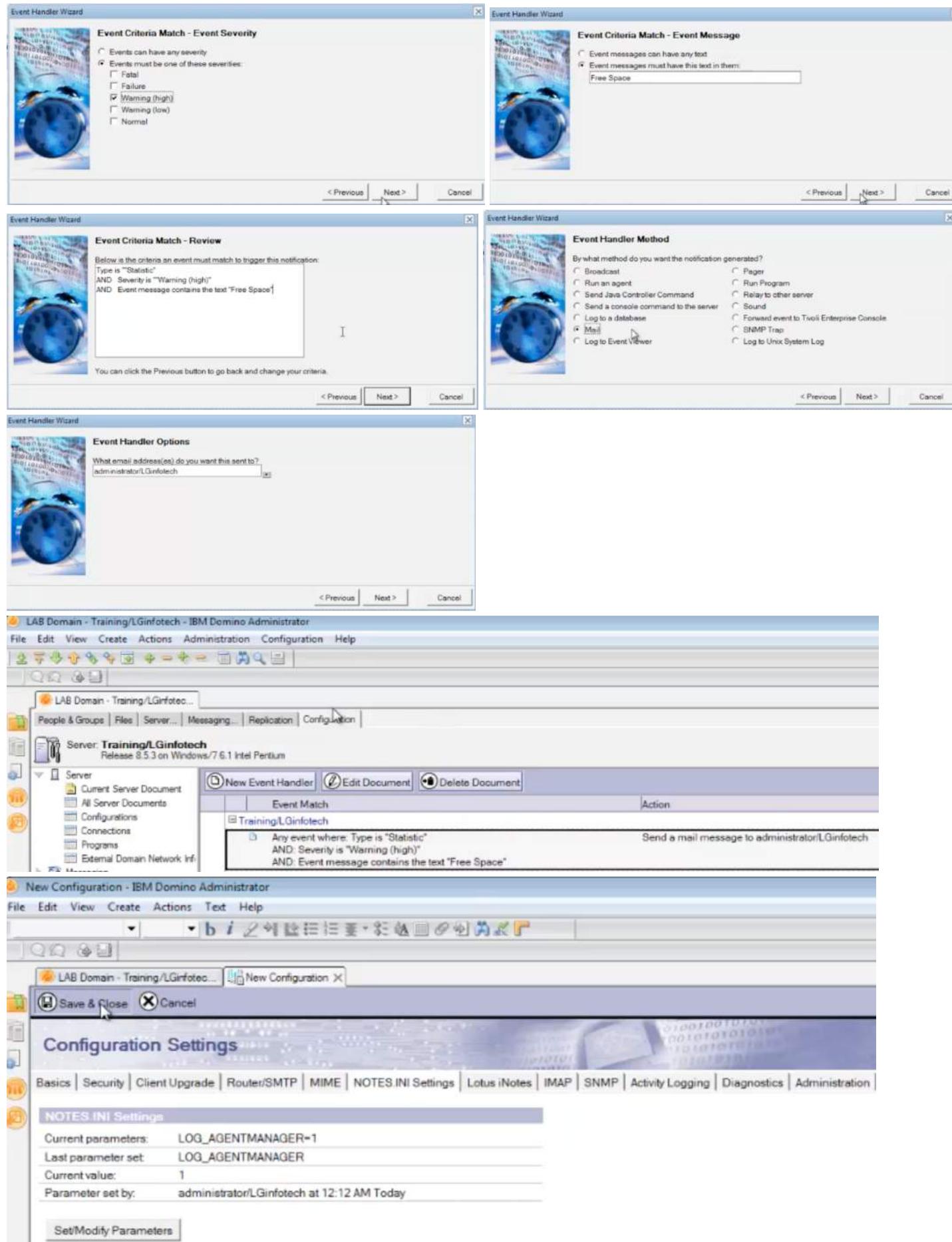
Static Collector

- Static Collectors task collects and monitors statics from the servers configured in the server Statistic Collect document.
- The Monitoring Results applications (StatRep.nsf) is repository for Lotus Domino system Statistics created when the Statistic Collector (collect) or Events (Event) Task is loaded for the first time

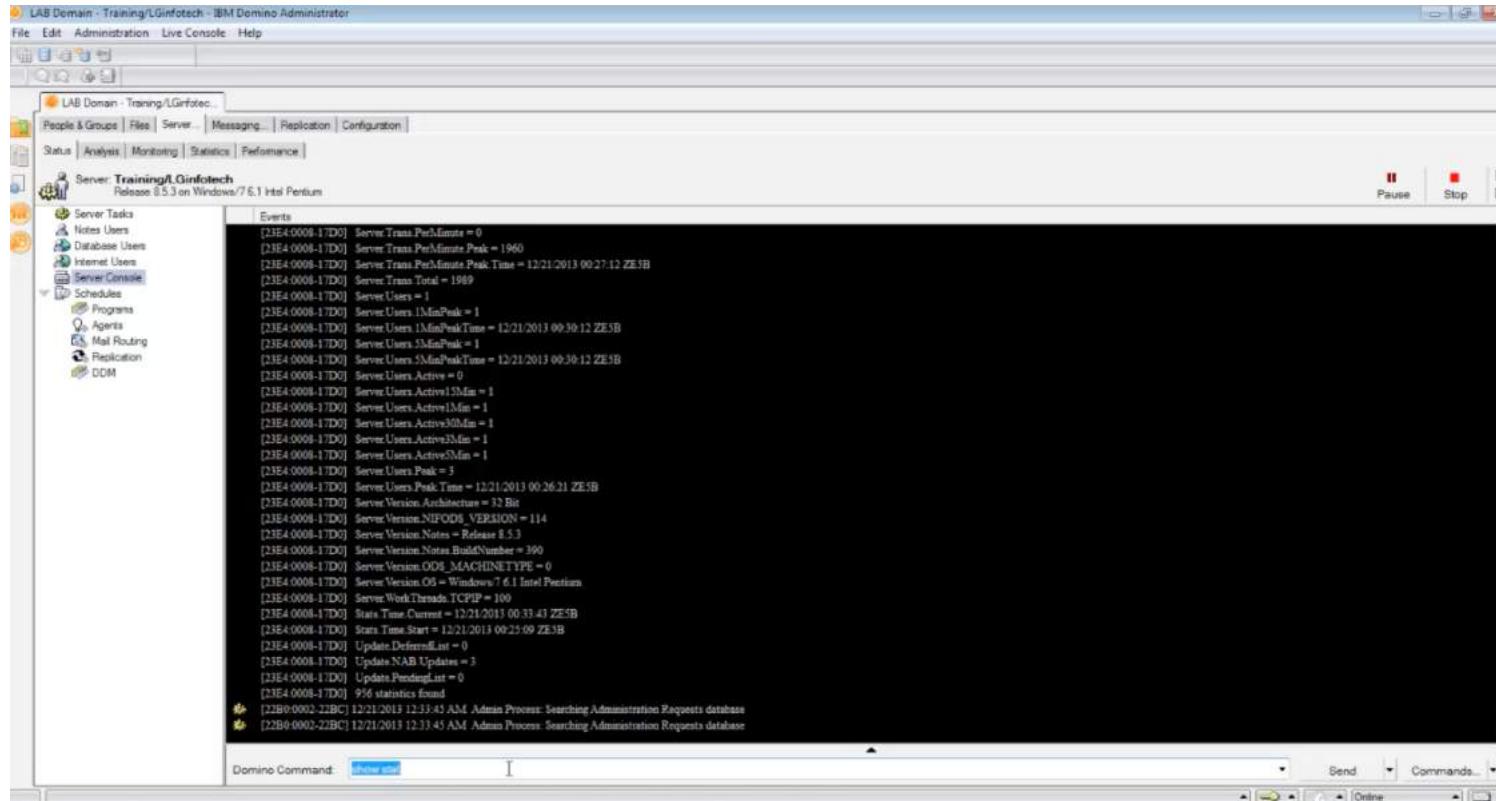
Start the Statistic Collector Task

- Click the server tab -> Status tab -> Server Tasks View.
- Verify the Statistic Collector task is not running
- Click Tools -> Task- > Start
- In the Start New Task box, click Statistic Collector
- Click Start Task
- Click Done.
- Click the Files tab. Verify that the monitoring results & application (StatRep.nsf) exists





46 - Monitoring Server Performance

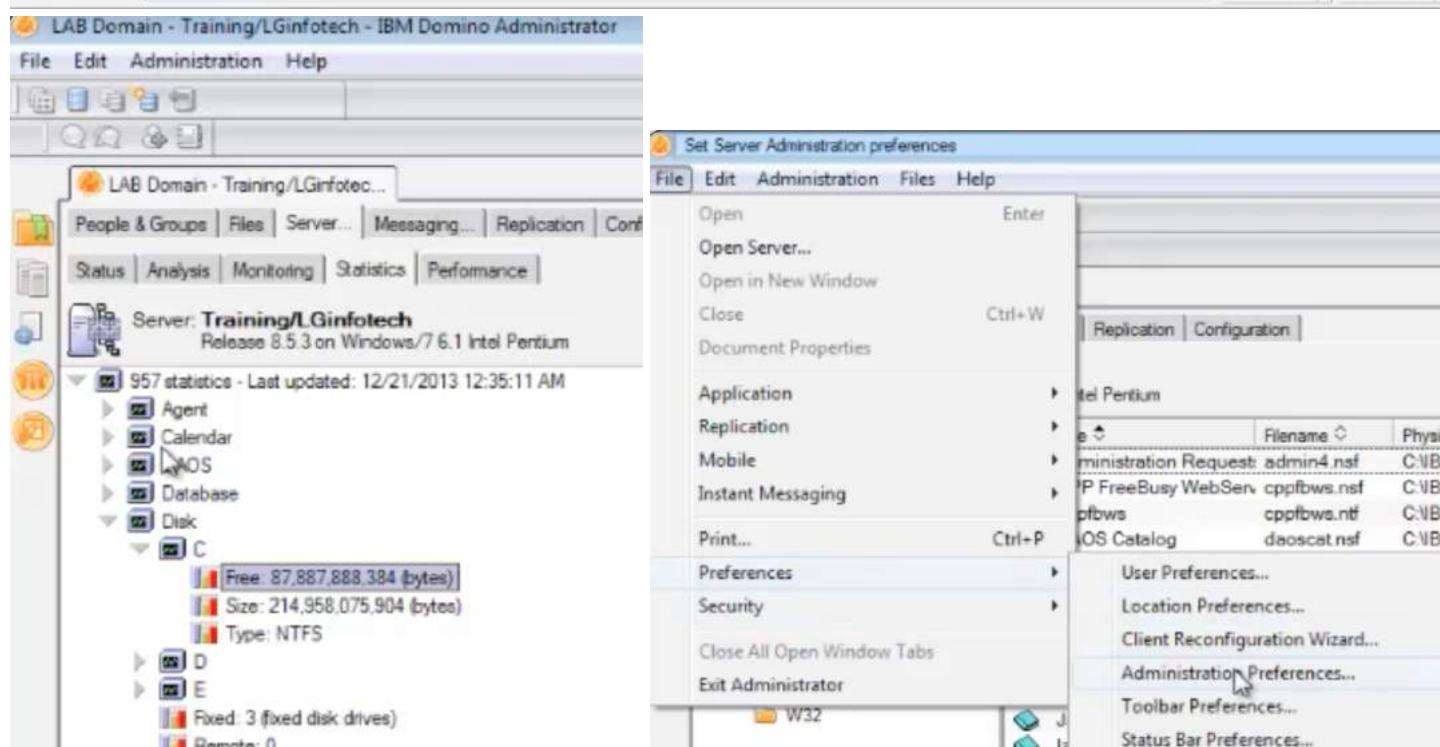


Domino Command: `show stat disk c*`

```

show stat disk c*
[23E4.0008-17D0] show stat disk.c*
[23E4.0008-17D0] Disk.C.Free = 87,887,888,384
[23E4.0008-17D0] Disk.C.Size = 214,958,075,904
[23E4.0008-17D0] Disk.C.Type = NTFS
[23E4.0008-17D0] 3 statistics found
[23E4.0008-20D0] 12/21/2013 12:34:00 AM Remote console command issued by administrator@LGinfotech: show stat disk.c*

```



Administration Preferences

Monitoring

Global settings for Monitoring

Do not keep more than MB of monitoring data in memory (4-99 MB)

Not responding status displayed after minutes of inactivity

Generate server health statistics and reports

Location specific Monitoring settings

When using location:

Monitor servers: From this computer From server

Collection Server:

Poll servers every minutes (1-60 mins) Automatically monitor servers at startup

OK Cancel

192.168.1.101:8080/webadmin.nsf

Most Visited Getting Started NTV Live Online | NTV ... Google Accounts TV9 AP | Latest

People & Groups Files Server... Messaging... Replication Configuration

You (administrator/LGinfotech) are connected to:

Server name:	Training/LGinfotech
Host name:	192.168.1.101:8080
Version and build:	Release 8.5.3 (390)
Operating system:	Windows/NT 6.1 (Windows/32)
Directory & partition:	C:\IBM\Lotus\Domino\data (C:\IBM\Lotus\Domino\data)
Server date & time:	12/21/2013 12:39:42 AM
Elapsed up-time:	00:14:31
Transactions/minute:	Last minute: 2; Last hour: 144; Peak: 1960
Peak # of sessions:	3 at 12/21/2013 12:26:21 AM
Transactions:	2012; Max. concurrent: 100
Waiting tasks:	0
Availability Index:	100 (state: AVAILABLE)
Mail domain:	lab
Mail tracking:	Not Enabled
Mail journaling:	Not Enabled
Shared mail:	Not available
Mailboxes:	1
Pending mail:	0; Dead mail: 0
DADs:	Enabled
Transactional logging:	Enabled
Activity logging:	Not Enabled
Fault recovery:	Not Enabled
Server controller:	Enabled
DB2 enabled:	Not Enabled

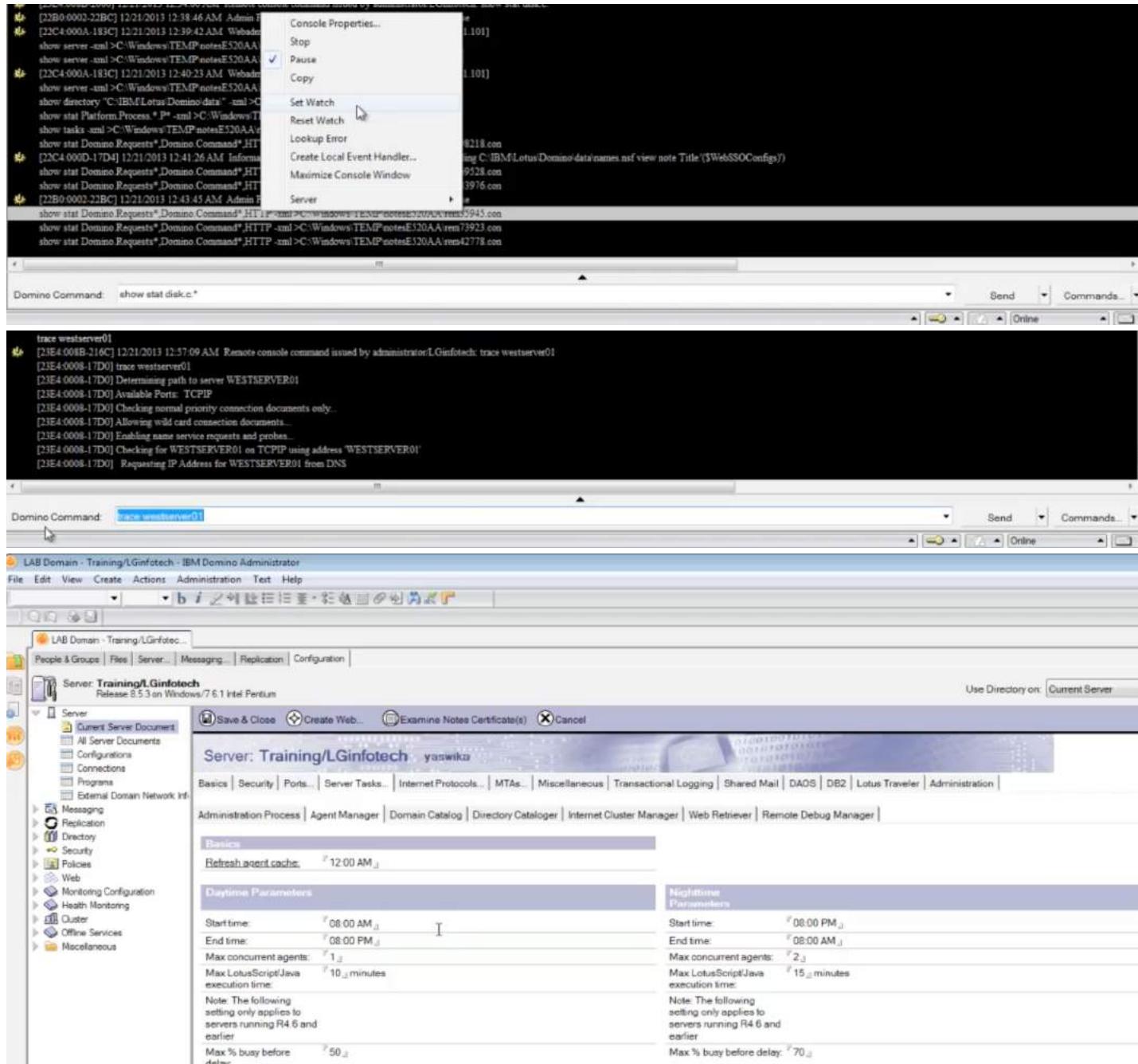
Lotus Domino Web Administrator 8.5 (09/12/2008)

The screenshot shows the IBM Domino Administrator interface. On the left, a sidebar lists various server components: All Server Tasks, Notes Users, Database Users, Internet Users, Quick Console, Live Console, HTTP Statistics, Schedules, and Operating System. The main pane displays a table of 16 server tasks, each with a status icon, task name, and activity description. A modal dialog box titled "Do you want to run this application?" is overlaid. It contains information about the publisher (International Business Machines Corp.), location (http://192.168.1.101:8090), and a note about Java security. A checkbox for "Do not show this again for apps from the publisher and location above" is checked. Buttons for "Run" and "Cancel" are at the bottom.

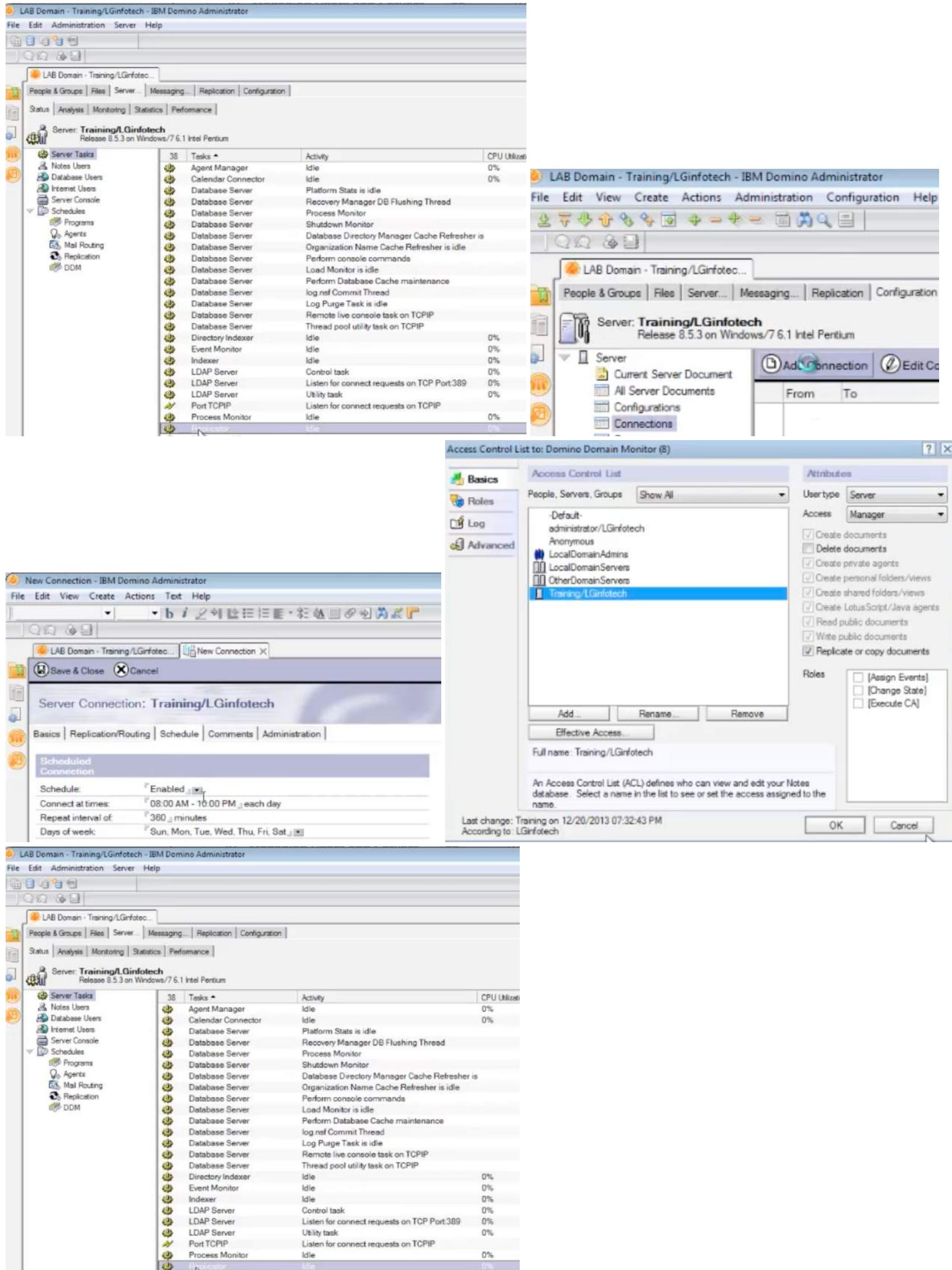
This screenshot shows the "HTTP All Request Statistics" section of the Domino Administrator. It provides a summary of traffic over time, including total requests, average requests per second, and peak times. Below this are sections for "HTTP Connection Statistics", "HTTP Poll Statistics", "HTTP Notes Request Statistics", and "HTTP Notes Command Statistics". The "HTTP Notes Request Statistics" table shows daily traffic details, and the "HTTP Notes Command Statistics" table shows command usage totals.

This screenshot shows the "Server: Training/LGinfotech" configuration page. The left sidebar lists categories like Server, Current Server Document, Configuration, Parameters, Connections, Programs, External Domain Network, and others. The main pane has tabs for Basic, Search, Code, Server Tasks, Internet Protocols, MTA, Miscellaneous, Transactional Logging, Shared Mail, DAOS, DB2, Lotus Traveler, and Administration. The "Basic" tab is selected, displaying server details such as name (Training/LGinfotech), build number (Release 8.5.3), and routing tasks (Mail Routing). The "Administration" tab is also visible, showing automatic server recovery settings.

47 - Resolving Server Problems



48 - Resolving Replication Problems



49 - Recovering a Domino Server

Crash stack identification

- Use any text editor to view the contents of the NSD log.
- Search the log for the crash stacks containing these keywords: **fatal**, **panic**, **core** and **child_died**

```
#####
## thread 37181 :: server pid=36032, k-id= 550209 , pthr-id=9253
## stack :: k-state=wait, stk max-size=262144, cur-size=8464
#####
ptrgl$PTRGL() at 0xd01d9b50
raise nsleep(??, ??) at 0xd01e85d8
raise nsleep(??, ??) at 0xd01e85d8
sleep(??) at 0xd0285fbc
OSRunExternalScript(??) at 0xd604890c
OSFaultCleanup(??, ??, ??) at 0xd6049b98
fatal_error(??, ??, ??) at 0xd6d3ef40
pth_signal pthread_kill(??, ??) at 0xd01ae5b8
pth_signal_p_raise(??) at 0xd01adbc4
raise raise(??) at 0xd01e89d4
Panic(??) at 0xd5da9090
LockHandle(??, ??, ??) at 0xd5da7fc0
OSLockObject(??) at 0xd5da8b94
ServerGetNotes(??, ??) at 0x10037f50
DbServer(0x7c73e96, 0xb97ea0) at 0x10011ad4
WorkThreadTask(??, ??) at 0x10087d40
Scheduler(??) at 0x1009a1fc
ThreadWrapper(??) at 0xd5da0170
pth_pthread_pthread_body(??) at 0xd019e608
#####
```

Call stack formats

- Call stack formats differ based on the operating system. For example, AIX and Solaris call stacks contain a header section which identifies the process ID and name of the related task.
- Using the example below, note that the crash occurred on the server process, the server's process ID is 36032, and the physical thread ID of the crashing thread is 9253.

```
#####
## thread 37181 :: server pid=36032, k-id= 550209 , pthr-id=9253
## stack :: k-state=wait, stk max-size=262144, cur-size=8464
#####
ptrgl$PTRGL() at 0xd01d9b50
raise nsleep(??, ??) at 0xd01e85d8
raise nsleep(??, ??) at 0xd01e85d8
sleep(??) at 0xd0285fbc
OSRunExternalScript(??) at 0xd604890c
OSFaultCleanup(??, ??, ??) at 0xd6049b98
fatal_error(??, ??, ??) at 0xd6d3ef40
pth_signal pthread_kill(??, ??) at 0xd01ae5b8
pth_signal_p_raise(??) at 0xd01adbc4
raise raise(??) at 0xd01e89d4
Panic(??) at 0xd5da9090
LockHandle(??, ??, ??) at 0xd5da7fc0
OSLockObject(??) at 0xd5da8b94
ServerGetNotes(??, ??) at 0x10037f50
DbServer(0x7c73e96, 0xb97ea0) at 0x10011ad4
WorkThreadTask(??, ??) at 0x10087d40
Scheduler(??) at 0x1009a1fc
ThreadWrapper(??) at 0xd5da0170
pth_pthread_pthread_body(??) at 0xd019e608
#####
```

Stack data structure

- Function calls list chronologically from the bottom up with the top calls being the last ones executed by the process.
- Review the function calls listed before the signal handler functions (fatal, panic, pth_ signal). This is the area of the code that was executing prior to the outage.

#0000000000000000

thread 37161 : server pid=36032, k_id=650209 , pth_id=9253

stack k-state=wait, stk max-size=202144, cur-size=6404

#####

pthl_SPTRESL() at 0xd01d9b5c

raise_nsleep(??, ??) at 0xd01e85d8

raise_nsleep(??, ??) at 0xd01c85d8

sleep(??) at 0xd0285f9c

OSRunExternalScript(??) at 0xd004890c

OSFaultCleanup(??, ??) at 0xd0049b88

fatal_error(??, ??, ??) at 0xd0d3ef40

pthl_signal_pthread_kill(??, ??) at 0xd01ae506

pthl_signal_p_aise(??) at 0x01adbc4

raise raise(??) at 0xd0fe89d4

Panic(??) at 0xd5da0090

LockHandle(??, ??) at 0xd5da7f10

OSLockObject(??) at 0xd5da8194

ServerGetNotes(??, ??) at 0x10037150

DbServer(0x7c73e96, 0x897ea0) at 0x10011ad4

WorkThreadTask(??, ??) at 0x10087d40

Scheduler(??) at 0x1009a1f1

ThreadNap(??) at 0xd5de0170

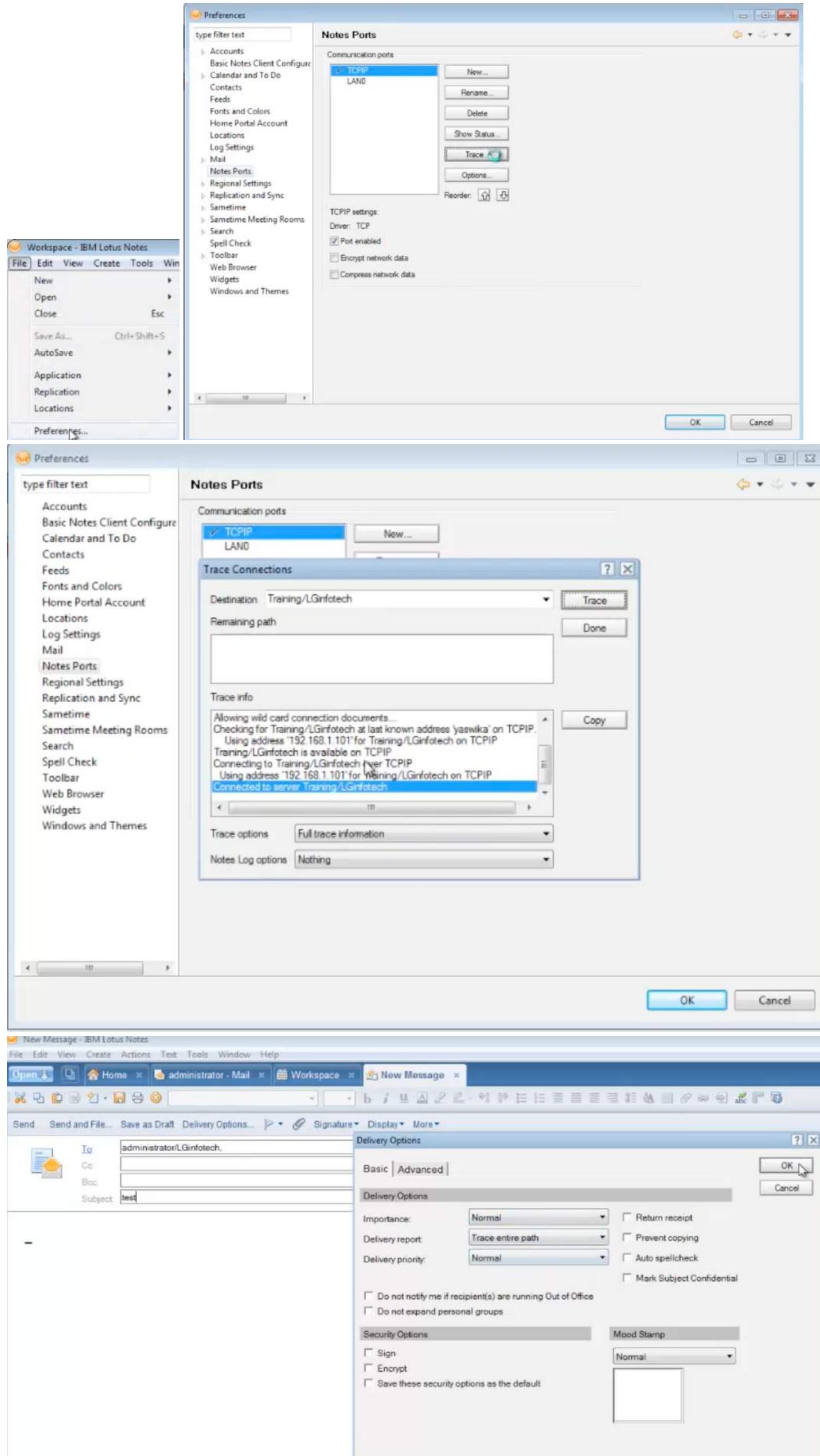
pthl_pthread_pthread_body(??) at 0xd019e608

#####

Order of execution: Start

Start reviewing calls from this point down.

50 - Resolving User Problems

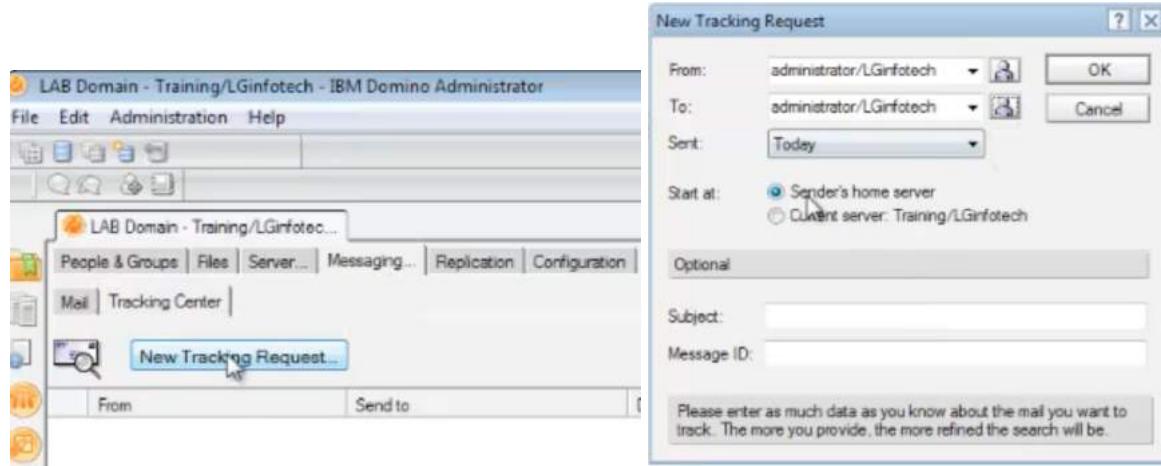


Trace Report

Your trace: test
addressed to: administrator/LGinfotech@lab
has reached: administrator/LGinfotech@lab
at: 12/21/2013 01:42:58 AM

Trace Information

Training/LGinfotech 01:42:58 AM Today - 01:42:58 AM Today
Training/LGinfotech 01:42:58 AM Today - 01:42:58 AM Today



Miscellaneous

Server commands

show server is used to display information about the Domino server:

show tasks displays information about the server tasks currently running and their status:

tell agmr displays the agents that are scheduled to run on the current day, as well as the database in which they are located:

```

Gustavo/Colorado: Lotus Domino Server
Database Server    Idle task
Database Server    Shutdown Monitor
Database Server    Process Monitor
Admin Process     Idle
Admin Process     Idle
SMTP Server       Listen for connect requests on TCP Port:25
SMTP Server       Utility task
Agent Manager    Executive '1': Idle
SMTP Server       Control task
Process Monitor   Idle
Rooms and Resources  Idle
Directory Cataloger  Idle
Router            Idle
Agent Manager    Idle
HTTP Server       Listen for connect requests on TCP Port:80
Schedule Manager  Idle
Calendar Connector  Idle
Replicator        Idle
Directory Indexer  Idle
Indexer           Idle
Admin Process     Idle
Event Monitor     Idle

>
>
>
> tell amgr schedule
S 03:12 PM Today  OutOfOffice!OutOfOffice
mail\acolorad.nsf
>

```

The **router** task is responsible for delivering mail to databases located on the server and for transferring mail to other servers, if necessary. Quite often it is necessary to check the router's queues or update its configuration tables, to verify it is working correctly.

```

Gustavo/Colorado: Lotus Domino Server
> tell router o
11/02/2009 03:33:50 PM  Out of office service is activated in the following databases:
11/02/2009 03:33:50 PM  Completed scan for active Out of office service.
>
> tell router s
>
Msgs State      Via      Destination
Transfer Threads: Max = 19; Total = 0; Inactive = 0; Max Concurrent = 9
Delivery Threads: Max = 19; Total = 0; Inactive = 0
>
> tell router update config
11/02/2009 03:34:31 PM  Router: Configuration updated and routing tables reloaded
>
> tell router l
Mbx Note      ID      State      Size Count From
>
> tell router q
11/02/2009 03:35:33 PM  Router: Shutdown is in progress
11/02/2009 03:35:33 PM  Mail Router shutdown

```

Quit command examples:

```

Gustavo/Colorado: Lotus Domino Server
>
>
> tell http quit
11/08/2009 09:53:34 AM  Domino Off-Line Services HTTP extension unloaded.
11/08/2009 09:53:35 AM  HTTP Server: Shutdown
>
> tell smtp q
11/08/2009 09:53:50 AM  SMTP Server: Waiting for all tasks to complete
>
11/08/2009 09:54:00 AM  SMTP Server: All tasks have completed
11/08/2009 09:54:00 AM  SMTP Server: Shutdown
>
> tell router quit
11/08/2009 09:55:08 AM  Router: Shutdown is in progress
11/08/2009 09:55:08 AM  Mail Router shutdown

```

Load task command example:

```

Gustavo/Colorado: Lotus Domino Server
>
>
> load http
11/08/2009 09:58:53 AM  HTTP Server: Using Web Configuration View
11/08/2009 09:58:57 AM  JVM: Java Virtual Machine initialized.
11/08/2009 09:58:57 AM  HTTP Server: Java Virtual Machine loaded
11/08/2009 09:58:57 AM  HTTP Server: DSAPI Domino Off-Line Services HTTP extension Loaded successfully
11/08/2009 09:58:58 AM  HTTP Server: Lotus Quickr Services loaded successfully.
Release: 8.1.0.13 Build: QRD8.1.0.13-003a On Domino: Build U801_02072008
11/08/2009 09:59:00 AM  HTTP Server: Started
>
> load router
11/08/2009 09:59:16 AM  Mail Router started for domain COLORADO
11/08/2009 09:59:16 AM  Router: Internet SMTP host gustavo in domain austin.ibm.com
>
> load smtp
11/08/2009 09:59:37 AM  SMTP Server: Starting...
11/08/2009 09:59:38 AM  SMTP Server: Started

```

Restart server

```

Gustavo/Colorado: Lotus Domino Server
Database Server Shutdown Monitor
Database Server Process Monitor
SMTP Server Listen for connect requests on TCP Port:25
SMTP Server Utility task
Agent Manager Executive '1': Idle
HTTP Server Listen for connect requests on TCP Port:80
Router Idle
Schedule Manager Idle
Agent Manager Idle
Rooms and Resources Idle
Process Monitor Idle
Directory Cataloger Idle
SMTP Server Control task
Calendar Connector Idle
Replicator Idle
Directory Indexer Idle
Indexer Idle
Admin Process Idle
Event Monitor Idle

>
> restart server
11/02/2009 03:56:26 PM Calendar Connector shutdown
11/02/2009 03:56:27 PM AMgr: Executive '1' shutting down. Process id '1028'
11/02/2009 03:56:27 PM Router: Shutdown is in progress
11/02/2009 03:56:27 PM Mail Router shutdown
11/02/2009 03:56:27 PM Rooms and Resources Manager shutdown complete
11/02/2009 03:56:27 PM Database Replicator shutdown
11/02/2009 03:56:27 PM Schedule Manager shutdown complete
11/02/2009 03:56:27 PM Administration Process shutdown
11/02/2009 03:56:27 PM Agent Manager shutdown complete
11/02/2009 03:56:28 PM SMTP Server: Waiting for all tasks to complete
11/02/2009 03:56:28 PM Index update process shutdown
11/02/2009 03:56:28 PM Domino Off-Line Services HTTP extension unloaded.
11/02/2009 03:56:29 PM HTTP Server: Shutdown
11/02/2009 03:56:30 PM Event Monitor shutdown

```

Quit server. (Be sure to wait until the server has completely and safely terminated all its tasks and services. The server console window should be closed automatically by the server when the entire shutdown process is complete. Do not close it manually as this may cause the server to crash)

```

Gustavo/Colorado: Lotus Domino Server
>
> quit
11/08/2009 10:24:23 AM Calendar Connector shutdown
11/08/2009 10:24:23 AM Database Replicator shutdown
11/08/2009 10:24:23 AM Schedule Manager shutdown complete
11/08/2009 10:24:23 AM Rooms and Resources Manager shutdown complete
11/08/2009 10:24:23 AM AMgr: Executive '1' shutting down. Process id '1956'
11/08/2009 10:24:24 AM Index update process shutdown
11/08/2009 10:24:24 AM SMTP Server: Waiting for all tasks to complete
11/08/2009 10:24:24 AM Agent Manager shutdown complete
11/08/2009 10:24:25 AM Domino Off-Line Services HTTP extension unloaded.
11/08/2009 10:24:26 AM Event Monitor shutdown
11/08/2009 10:24:26 AM HTTP Server: Shutdown
11/08/2009 10:24:26 AM Administration Process shutdown
11/08/2009 10:24:30 AM Directory Cataloger shutdown
11/08/2009 10:24:38 AM SMTP Server: All tasks have completed
11/08/2009 10:24:38 AM SMTP Server: Shutdown
11/08/2009 10:24:41 AM Server shutdown complete

```

Database Corruption

Database corruption is generally characterized as when a part or the entire database has suffered data loss, integrity issues, inconsistent data, limited functionality, or is just plain unreadable.

Database corruption can be caused by factors such as power outages, hard disk failures, network issues, crashes, software failure, and user intervention. Due to the nature of corruption itself and the many factors that could cause it, it is not possible to determine what caused the corruption unless it is reproducible.

Many times it may be possible to recover a database from a corrupted state by use of some or all the maintenance tasks **fixup**, **compact**, and **updall**, which are usually **performed in that order**. Unfortunately, however, sometimes this is just not possible, so it may be necessary to restore a copy from a backup (thus the importance of backing up).

NSD

NSD is a program that comes with the Domino Server (nsd.exe for Win32 platforms or [nsd.sh](#) for UNIX® platforms) and is also available with Lotus Notes clients. When executed, it collects vital information about the computer's current status, such as the server/client version, date and time, NSD version, the processes running in the operating system, thread information, and memory allocation, and generates a report containing all this information.

This information is extremely useful when troubleshooting server or client crashes and hangs, and is often requested by Lotus Technical Support. Therefore, it's important to keep the NSD up-to-date because continuous improvements are added by IBM that help in the troubleshooting process.

Sources:

- <https://www.udemy.com/course/lotus-domino-administration-853/>
- https://wiki.cayu.com.ar/lib/exe/fetch.php?media=manuales:domino_admin_for_beginners.pdf
- <https://www.udemy.com/course/hcl-domino-11-systemadministration-1-grundlagen/>
- <https://www.udemy.com/course/hcl-domino-11-systemadministration-2-aufbau/>

