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55 Cambridge Parkway
Cambridge, MA 02142

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Preface

License information

You can view or print your License Agreement after installing Domino Workflow 2.1. All language versions of the License Agreement are ASCII text files named with the format language.txt. These files can be found in the ...\Archict\License directory. Use any text editor to view or print these files.

Migration from previous versions

Upgrading from Domino Workflow 2.0 or Domino Workflow 2.1 to Lotus Workflow 3.0 involves installing new databases, copying the forms and designs from the old databases, and migrating your existing documents to the new databases. It’s a straightforward but somewhat detailed process. For guidance in performing the upgrade and migration, we recommend that you first read the Migration Guide in Notes Help format, which you can also print out for reference. The help files are normally installed on your computer as part of the standard installation.
Chapter 1
Introduction

About Lotus Workflow 3.0

Lotus Workflow is a set of Lotus Notes® databases and Windows programs that allow your organization to plan, schedule, track, monitor, and archive its document-based work and projects.

Overview

Following is a brief sketch of how Lotus Workflow works. The terms in bold type are part of the basic vocabulary we use in talking about Lotus Workflow. You will see these terms in the documentation and in the Glossary.

The tools in Lotus Workflow provide for the design of systematic processes, or sets of rules, for routing a binder of one or more documents through a series of activities. Each job that is undertaken in the Workflow environment follows one of the processes designed for the organization. As the binder is routed through the activities of a job, the document(s) in the binder may be added to, modified, approved, and so on, by the person who was authorized to claim the activity.

One of the hallmarks of Lotus Workflow is its flexibility. Processes can range from completely ad-hoc informal teamwork to rigidly structured procedures with multiple levels of approvals and automatic notification to managers when deadlines are missed.

With the Lotus Workflow Architect, a Windows program, a process designer lays out the steps in a process as a diagram similar to a flow chart. Activities are nodes in the diagram, and connectors between the nodes are assigned routing relations that determine which path the binder will take from one activity to the next. The connectors may pass through decision points to show decisions that must be made.

The process definition defines the contents of the binder for each activity, instructions for work to be done on the documents, who may work on the activity, any deadlines, routing conditions, and so on. Little programming is needed to design and implement Lotus Workflow processes. The Domino™ Designer is used to create forms and customize views; it may also be used to create custom LotusScript agents for automated processing.
A process is a blueprint for a particular kind of work to be accomplished. A job is the actual work that is done according to a process definition. Jobs are initiated and carried out by people in an organization or by other applications, programs, or automated activities to accomplish specific goals according to the various processes that have been designed for the organization. A job owner may monitor the job, receive e-mail notices of its progress, and intervene if it’s not going according to plan.

Each activity may be claimed and then performed by a person in the organization, or it may be automated according to the properties defined for the activity. The activity owner of each non-automated activity modifies the main document and other documents in the binder, as needed. When each activity is completed, the binder is routed to the next activity, and so on, until the entire job is completed. When the job is completed, its documents may be archived for future reference or for generating reports.

The Lotus Workflow Viewer is a Windows program that allows workflow participants to view the diagram for the process underlying each job. The Viewer provides the activity owner with a graphical overview of the previous, current, and subsequent activities in a job.

The Lotus Workflow Web Viewer is a Web version of the Viewer, with most of its capabilities.

**Lotus Workflow benefits**

The benefits of Lotus Workflow are many and diverse, depending on your organization’s goals and the kinds of things it does. Following are some examples.

**Faster work completion**

If your organization’s processes are mostly paper-based, Lotus Workflow can dramatically reduce the time it takes to accomplish tasks. Automating processes and moving documents electronically virtually eliminates the time required to move paper around your organization. In addition, the instructions and routing rules contained in the process definitions assure that problems are caught early and that repetitive tasks are automated.

**Gains in productivity**

If you’re a workflow participant, Lotus Workflow saves valuable time by helping you organize your work and set priorities. Work arrives with all the supporting documents. You can sort your work by priority or due date, so you can work on the most important or most time-sensitive tasks first. Lotus Workflow also allows you to delegate work, form teams to help you, and report problems to your supervisor or manager.

2 Lotus Workflow Process Designer’s Guide
Improvements in process control
When procedures and rules live only inside the heads of workers, consistency and quality can suffer. Lotus Workflow can be a powerful knowledge management tool for standardizing your organization’s processes while providing great flexibility for modifying and improving them.

Improvements in customer service
When your organization’s processes are standardized and work is completed faster, your customers — internal and external — benefit. Workflows can even be designed that allow customers to initiate work and track its flow. Lotus Workflow is a cost-effective way to increase customer satisfaction. Your organization benefits from repeat business and customer retention.

More effective collaboration
Over time, the process definitions created under Lotus Workflow can become a storehouse of “best practices” for the organization, which can be shared across the enterprise.

Ease of use
Lotus Workflow is built on the Notes/Domino foundation. This means that the basic operations — opening and closing files and databases, navigating among documents, and so on — should be familiar to users.

What’s new in Lotus Workflow 3.0
Lotus Workflow 3.0 is a major feature release containing many improvement over Domino Workflow 2.1 and 2.1.1. Here are some of the enhancements:

General
• Lotus Workflow is faster (depending, of course, on the infrastructure of servers and so on).
• Sametime® functionality lets users and designers chat and share information.
• Context-sensitive links bring users and designers directly from dialog boxes to relevant help topics.

Workflow participants (end users)
• User interface templates for applications and the Organization Directory have been simplified.
• The Web UI has been expanded and made easier to use.
• A new Web Viewer lets Web users see the structure of a process or of a job that’s already running.
Process designers
- Decision points make processes easier to design and maintain.
- Objects in the Business Object library can be listed hierarchically.
- The Business Object library can be searched.
- Custom attributes have been enhanced, including persistent attributes from activity to activity without recoding.
- Workflow designs can be imported from and exported to XML format.
- Handling of resources in the Organization Directory is easier.
- LDAP is supported for person records in the Organization Directory.
- The Domino Directory is supported for person and group records in the Organization Directory.
- Notes Mail can be launched from inside the Business Object library.

Application developers
- The Developer’s Kit has been greatly expanded, including a more complete Notes and LotusScript API.
- A Java API has been added for compatibility with IBM® WebSphere® and Web services.
- Much of the user interface has been isolated so developers can create “skins” to vary the look and feel of various applications without affecting back-end code.

Who uses Lotus Workflow
Lotus Workflow users are individuals and groups in an organization who need to administer, design, or perform work that supports various business processes in their organization. That work is routed in binders that contain documents that the user modifies, approves, rejects, adds to, deletes, and so on.

- Workflow participants (sometimes just called users) complete activities by following instructions that accompany binders of documents they receive in their activity lists. Depending on how Lotus Workflow is configured, users may be able to view all the activities in a job, including information about where the binder is in the job, who has been assigned to complete each activity, the instructions for completing the activity, and the rules for routing each binder to its next activity.
- The process designer uses the Lotus Workflow Architect to design the processes on which jobs are based. The process designer may also administer one or more of the databases, if those tasks are not allocated to others.

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• The **job owner** is responsible for the overall completion of each job that is started in a particular process. This person can be notified if an activity hasn’t started or hasn’t been completed on time. The job owner can also intervene in a job to change its routing, cancel the job, and so on.

• The **application designer** creates the forms used in the application database. The application designer may also be the process designer.

• The **Lotus Workflow administrator** creates and maintains the Lotus Workflow databases. This person manages the access controls, distribution of applications by replication, and configuration and setup of Workflow applications on the Domino server.

• **Database owners** may be people other than the Lotus Workflow administrator who are in charge of the databases. They may design forms, set access control lists (ACLs), and so on.

These functions may be divided or combined. The process designer may also be the administrator or a job owner, for instance, and the job owner may initiate and complete activities in some jobs.

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**Who should use this documentation — process designers**

This documentation is intended primarily for process designers who create process designs for their organization. Process owners, if they are different from the process designers, should also read this documentation for information on process design and the ways in which it may affect the databases they are responsible for. Application designers and application database owners may want to consult this documentation to understand how Lotus Workflow processes use the forms created in the application(s).

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**About the Organization Directory database**

The Organization Directory database is one of the Lotus Workflow databases; it typically contains information about departments, workgroups, and roles. By default, Lotus Workflow is set up to use the Domino Directory of your organization for information about people. In setting up the Organization Directory, the Organization Directory owner creates documents describing the departments, workgroups, and roles and then assigns people to them.

The Organization Directory database can also contain information about people, either in addition to or instead of the information in the Domino Directory. A stand-alone Organization Directory might be created, for instance, for a specialized sub-group within a company.
When a process is designed, a name (or more typically, a workgroup or role) is assigned in the process definition to each activity to indicate who are the potential activity owners. Information for this assignment comes from the Organization Directory.

Other types of directories can be used with Lotus Workflow, including LDAP-enabled Domino Directories.

A powerful feature of the Organization Directory is the ability to assign substitutes for people who are out of the office. If the substitution feature has been activated by your Workflow team, you or a Workflow administrator can assign one or more substitutes who can take over for you in your absence. When you’re absent, you can set up an out of office profile designating which of your substitutes should be given your assignments. (If you’re absent unexpectedly, someone else can fill out this profile for you.)

**Assigning substitutes**

If substitution rules have been activated for your Organization Directory, substitutes can be assigned to work on activities when the people normally assigned to them are unavailable.

Substitutions can be made for groups or individuals.

**Substitutes for workgroups, departments, and roles**

Substitutes are used for groups when everyone in the group is unavailable to claim an activity. Substitution lists for groups are typically created and maintained by Lotus Workflow administrators.

Follow these steps.

1. Open the Organization Directory database. The database will appear, with a list on the right and a navigation pane on the left.
2. Click Organizational Structure in the navigation pane and choose a type of group — Workgroup, Departments, or Roles.
3. A list of documents representing that type of group. Highlight a document you want to edit.
4. Click Edit Document.
5. Open the section entitled Substitute, and click the option Substitute.
6. A box appears with the title Substitute(s).
7. Click the Add button. A dialog box appears with a listing of all the organization units in your Organization Directory.
8. Select one or more substitutes. You can expand any category (Department, Person, Role, Workgroup) by clicking the triangle next to it. You must select at least one organization unit to serve as a potential substitute.

**Note** Depending on how the Organization Directory is configured, you may see Domino Directory entries for person information. Although the dialog box for the Domino Directory may also show groups, you should use only persons from the Domino Directory. Domino Directory groups aren’t supported as substitutes.

9. Click OK when you’ve made your selections done. The substitutes will appear in the Substitutes box in your person document.

**Removing substitutes**
When you’ve created a list of substitutes, two additional buttons appear.

- Click Remove to remove one or more individual entries. You’ll see a dialog box where you can indicate which substitutes you want to remove.
- Click Remove all to remove all entries.

**Subsequent substitutes**
The substitute you designate in your out of office profile may also be unavailable. If that person has a substitute, your work can be passed on to the subsequent substitute.

- Click Allow subsequent substitutes to enable this feature.

**Saving your changes**
When you’ve finished editing the document, click Close. You’ll be prompted to save your changes.

**Substitutes for individuals**

**Note** Depending on how the Organization Directory was configured, Person documents may not be available. If this is the case, you cannot assign substitutes, and you can skip this operation.

You can select a substitute when you create an out of office profile. You can also use the following procedure to create a list of possible substitutes ahead of time.
Follow these steps.

1. Open your Organization Directory database. Your Workflow administrator(s) will tell you where the database is located and how to access it.
   - You may receive e-mail with a database link. Click the link to open the database.
   - You may be instructed to choose Database — Open from the File menu in Notes and to choose the Organization Directory database on a particular server.
   - Once you have the Organization Directory database on your Notes desktop, you can simply click it to open the database.

   The database will appear, with a list on the right and a navigation pane on the left.

2. Click Organizational Structure - Persons in the navigation pane.

   Note  If you don’t see a Persons entry, your Organization Directory isn’t set up to create a substitute list.

3. Type your last name. A search box will appear automatically as you type. Press Enter or click OK. If more than one person has your last name, scroll to your name.

4. Click Edit Document.

5. Open the section entitled Substitute, and click the option Substitute.

6. A box appears with the title Substitute(s).

7. Click the Add button. A dialog box appears with a listing of all the organization units in your Organization Directory.

8. Select one or more substitutes. You can expand any category (Department, Person, Role, Workgroup) by clicking the triangle next to it. You must select at least one organization unit to serve as a potential substitute.

   Note  Depending on how the Organization Directory is configured, you may see Domino Directory entries for person information. Although the dialog box for the Domino Directory may also show groups, you should use only persons from the Domino Directory. Domino Directory groups aren’t supported as substitutes.

9. Click OK when you’re done. Your substitutes will appear in the Substitute(s) box in your person document.

   Now when you create an out of office profile, you can select from among these substitutes.
Removing substitutes
When you’ve created a list of substitutes, two additional buttons appear.

- Click Remove to remove one or more individual entries. You’ll see a dialog box where you can indicate which substitutes you want to remove.
- Click Remove all to remove all entries.

Subsequent substitutes
The substitute you designate in your out of office profile may also be unavailable. If that person has a substitute, your work can be passed on to the subsequent substitute.

- Click Allow subsequent substitutes to enable this feature.

Saving your changes
When you’ve finished editing your person document, click Close. You’ll be prompted to save your changes.

Note Your list of possible substitutes may have been set up already by your supervisor or by a Workflow administrator.

Creating an out of office profile
When you won’t be available to work on activities, an out of office profile should be created for you. You can do this yourself for the absences you can anticipate. You should also designate at least one other person who can create your out of office profile for you in case of an unplanned absence.

Designating someone to create an out of office profile for you
Follow these steps.

1. Open your Organization Directory database. Your Workflow administrator(s) will tell you where the database is located and how to access it.
   - You may receive e-mail with a database link. Click the link to open the database.
   - You may be instructed to choose Database - Open from the File menu in Notes and to choose the Organization Directory database on a particular server.
   - Once you have the Organization Directory database on your Notes desktop, you can simply click it to open the database.

The database will appear, with a list on the right and a navigation pane on the left.
2. Click Organizational Structure - Persons in the navigation pane.
3. Type your last name. A search box will appear automatically as you type. Press Enter or click OK. If more than one person has your last name, scroll to your name.
4. Click Edit Document.
5. Open the section entitled Out of Office Profile.
6. A box appears with the title Can create an out of office profile.
7. Click the Add button. A dialog box appears with a listing of all the organization units in your Organization Directory.
8. Select one or more people or groups that can create an out of office profile for you. You can expand any category (Department, Person, Role, Workgroup) by clicking the triangle next to it. You must select at least one organization unit.
   
   **Note** Depending on how the Organization Directory is configured, you may see Domino Directory entries for person information. Although the dialog box for the Domino Directory may also show groups, you should use only persons from the Domino Directory.

9. Click OK when you’re done. People or groups that can create an out of office profile for you are now listed in the box.

**Removing entries**
When you’ve created a list of those who can create an out of office profile, two additional buttons appear.

- Click Remove to remove one or more individual entries. You’ll see a dialog box where you can indicate which substitutes you want to remove.
- Click Remove all to remove all entries.

**Saving your changes**
When you’ve finished editing your person document, click Close. You’ll be prompted to save your changes.

**Note** Your list of those who can create an out of office profile for you may have been set up already by your supervisor or by a Workflow administrator.

**Creating the profile**
To create an out of office profile, follow these steps.

1. If it’s not already open, open the Organization Directory database.
2. In the navigation pane, click Out of Office Profile. The calendar will appear on the right.

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3. Click Create Profile.
   By default, you can create an out of office profile for yourself. If you’re creating a profile for someone else, click the Complete for button to display a list of people and groups for which you can create profiles.

4. Fill in the departure and return dates.

5. If you want your work to be done by a substitute, click Substitute.

6. Click the Select Substitute button.
   • If you’ve set up a list of substitutes in your person document, you’ll see a list of them.
   • If you haven’t set up such a list, you’ll see a directory listing.

7. Highlight one substitute and click OK.

8. Click Close. You’ll be prompted to save your changes.

The calendar will now show an entry for each day that the out of office profile spans.

Modifying or deleting a profile
• To modify a profile, highlight one of its entries in the calendar and click Edit Document.
• To delete a profile, highlight one of its entries in the calendar and click Delete Profile.

Key concepts and terms
Following are most of the important concepts and terminology used in Lotus Workflow. They are organized in a logical flow; for a full listing in alphabetical order, see the Glossary.

Basic Workflow elements
workflow — A method and means of routing work based on business rules and assigning work based on a person’s position or functional role in an organization.

process — The representation of the activities and routing rules describing a workflow, along with information about who can complete each activity, and which forms and resources are to be used. For example, a process for requesting a purchase order may indicate who can request or approve a purchase order and describe the route a purchase order request takes through the organization until a purchase order is issued.
job — A single instance of a process in order to achieve a specific goal. For example, a job may be started, using the process for purchase order requests, to obtain a purchase order for a new computer for a particular employee.

activity — A unit of work representing one of the steps in a process. Activities are represented as nodes in a process diagram. The binder, containing the documents necessary to complete a job, is routed from activity to activity. Activities are assigned to potential activity owners. The person who claims the activity can work on it; the other potential activity owners can’t claim and complete it. When an activity is completed, its binder is routed automatically to the next activity.

team activity — An activity in which more than one person can modify or add to the documents in a binder. The team may be specified as part of the activity’s design or by the activity owner. Team members can modify and add documents, but they can’t claim and complete the activity.

activity status — The description of what is happening in an activity. The status may be any of the following:

new (ready to claim) — An activity has been assigned to potential activity owner(s) and the binder for the activity has appeared in their activity lists. An activity is assigned only when the binder has been routed to it.

individual — The activity has only one potential activity owner.

shared — The activity has more than one potential activity owner.

in progress (claimed) — The activity has been claimed and is being worked on.

automated — The activity is performed without intervention by an activity owner, either as soon as the binder is routed to it, or when a scheduled agent activates it.

overdue — The activity has a deadline that has been missed. The activity may or may not have been claimed.

postponed — The activity has been stopped until a specific date or until it is reactivated by the activity owner or the job owner.

suspended — The activity has been stopped until it is reactivated.

reassigned — The activity owner has reassigned the activity to someone else.

completed — The activity has been finished. If the job is not completed, the binder is routed to the next activity, if there is one.
instance — A term used in the Lotus Workflow Viewer to indicate a job step or routing relation that has been completed or is in progress. (Examples: activity instance, automated activity instance, routing relation instance). In the Viewer, the nodes in the diagram change color to indicate an instance.

task — A unit of work within an activity. Up to seven tasks may be specified in the “details” panel or in the main document.

Document containers
binder — A virtual container for documents that proceed through a job. A binder may contain the following documents: main document, Domino.Doc binder, mail inquiries, and any other documents.
binder status — The description of what is happening to a binder as it moves from activity to activity. The binder status may be any of the following:

  new (ready to claim) — The binder has been routed to an activity that has not yet been claimed. The binder appears as an icon in the activity lists of the potential activity owners.
  claimed — The binder is in an activity that has been claimed and is in progress.
  ready to route — The binder is in a completed activity and is waiting for an agent to route it to the next activity.
  ready to submit — The binder is in a job in a host process and is awaiting an agent to route it via e-mail to a job in a subprocess in a different database.
  ready to return — The binder is in a job in a subprocess and is awaiting an agent to route it via e-mail back to the job in the host process in a different database.
  submitted — The binder is in a subprocess. Shown in the job in the host process while the binder is in the subprocess.
  returned — The binder has been sent back to a job in the host process from a job segment in a subprocess. A copy of the binder remains in the subprocess’s activity as a backup until the job is completed.
  waiting for join — The binder was copied and routed to two or more previous activities. It has been routed from a completed activity and is now ready to be joined with its copy(ies) when their activities are completed.
cover document — The document containing the basic instructions and data for accomplishing the work in the current activity. Previous versions of Domino Workflow used cover documents; in Lotus Workflow the information may be visible either within the main document or by clicking a button or icon or menu item such as “More Information - Show Details.”

main document — The document to be worked on in an activity. As it moves from activity to activity, the main document may be based on different forms.

document status — The description of how accessible a document is.

reserved — A document in the binder has been reserved by the activity owner of a shared (team) activity. Only the activity owner can edit a reserved document. When the activity is completed, all reservations are canceled.


Personnel

owners — People in charge of a particular aspect of the Workflow product, processes, binder, or activities.

application database owner — The person who manages the application database.


process owner — Usually the process designer. The person or group of people who use the Lotus Workflow Architect to design processes and activate them in the application database.

job owner — The person or group responsible for the overall completion of a job. Typically, the job owner is notified if an activity or the job is overdue. The job owner also has rights to intervene in a job in various ways: rerouting, accessing documents, claiming and completing activities.

potential activity owner — One of two or more persons who can claim an activity.

activity owner — The person who claims an activity and is responsible for its completion. The activity owner may also appoint a team to help with the activity or reassign the activity to someone else (if this is permitted in the process definition).

organization unit — An entity in the Organization Directory database: a person, role, workgroup, or department.
reader — Anyone with read access to documents in an activity or job. Depending on settings in the process definition, a reader may have access to the documents in a single activity or in all activities throughout the job.

substitute — A person or group that assumes responsibility for a person who is absent or a group in which all members are absent. Substitution rules are stored in the Organization Directory database. For individuals, an out of office profile must be completed designating at least one substitute. (In some versions of this product, substitutes were called “surrogates.”)

Databases
The three principal databases of Lotus Workflow constitute the Lotus Workflow Engine. These are the databases that are operational when working on jobs.

application database or application — A Notes database containing the jobs and the binders and documents needed to complete the jobs, along with information about activity status and deadlines. The database also contains the forms and views defined for displaying job information to Workflow participants. These forms and views can be customized to suit a particular organization’s needs. An organization may have more than one application database dedicated to a particular purpose (purchasing, technical reports, charitable donations, IS, customer service, order entry, etc.).

Organization Directory database — A Notes database containing information about the Workflow participants: the people, departments, workgroups, and roles, and the formulas expressing relationships among them.

Process Definition database — A Notes database containing information about properties assigned to processes and their Workflow elements: activities, routing conditions, and so on. This database is accessed indirectly by workflow participants in the course of completing activities in the application database.

One database contains basic design elements.

Design Repository database — A Notes database storing processes and their elements, as well as related formulas. This database is accessed by the Lotus Workflow Architect as a source of process design elements that can be reused in creating new processes. In conjunction with the Organization Directory database, it forms a part of the Business Object library.

Two optional databases can become part of the Engine.

Audit Trail Database — A record of actions taken during the course of a job.
**Archive database** — A Notes database for storing information about completed binders.

**Resource used by the Architect**

**Business Object library** — An area in the Lotus Workflow Architect that provides access to all the design elements in the Design Repository database and entries in the Organization Directory database. The library provides quick access to reusable elements that can be used as building blocks in creating new processes.
Chapter 2
Sametime Integration

About Sametime in Lotus Workflow

Sametime is a Lotus product that lets you connect instantly with others for on-line chats and application-sharing meetings. If your Notes or Lotus Workflow administrator has installed and enabled Sametime for Lotus Workflow, you can chat with any person who is Sametime-enabled and online in Sametime.

Sametime is useful for getting information from potential and actual activity owners, team members, job owners, supervisors, and so on. Process designers can use Sametime as they create or modify process designs, and workflow participants and job owners can use Sametime as they work on or supervise activities.

You can tell who is online or offline in Sametime by expanding the group lists and looking at the person lists in the various dialog boxes of the Lotus Workflow Architect, Lotus Workflow Viewer, or Lotus Workflow Web Viewer.

You can also get a comprehensive view of who is online or offline in Sametime. Open the Business Object Library and choose View by Hierarchy. This view lets you view by Department, Workgroup, or Role. In these views you can see comprehensive lists of people at your site.

The icon next to a person’s name indicates the person’s Sametime status.

- When a person is active in Sametime, a green square appears next to the person’s name.
- When a person is away in Sametime, a red circle appears next to the person’s name.
- When a person has indicated that he or she doesn’t want to be disturbed, a circle with a line through it appears next to the person’s name.
- If a person is offline, a Lotus Workflow person icon appears next to the person’s name.
See these sections to find out more about Sametime and how it is integrated into Lotus Workflow:

- Setting Sametime preferences
- Connecting to Sametime
- Disconnecting from Sametime
- Starting a Sametime Chat

**Setting Sametime preferences**

To connect to a Sametime community server, you must set your Sametime connectivity preferences. The information you enter for your Sametime preferences depends on your network configuration.

You can set your Sametime preferences in the Architect and the Lotus Workflow Viewer to enable Sametime functionality when you are working in these areas of Lotus Workflow. To enable Sametime the Web Viewer, an administrator or application programmer at your site must configure the servlet.properties file for Sametime.

Sametime Connect supports several types of connections to the Sametime Community server. You can connect using a direct TCP/IP connection, or if the server is outside a firewall, using a proxy server. You can connect to Sametime using the following types of connections:

- Direct TCP/IP connection with no proxy (If the Sametime Community server is outside a firewall, ask your System Administrator to make sure you are allowed to connect to services on port 1533 (Sametime’s well-known port) and that port 1533 is open for outgoing TCP/IP.)
- HTTPS proxy server
- SOCKS proxy server
- HTTP proxy server

If you are unable to connect to the Sametime server, contact your network or firewall administrator to find out the correct connectivity configuration for your network or firewall.

**Tip** If your company uses a proxy server, and you don’t know the settings, you may be able to find and use the settings in the preferences of other Internet applications (such as browsers) on your computer.
Follow these steps to set Sametime connectivity options from the Architect and the Lotus Workflow Viewer.

1. Choose Preferences from the Options menu.
   The Applications preferences dialog box appears.
2. Click the Sametime tab.
3. (Optional) To set the preference for logging onto Sametime automatically the next time you launch the Lotus Workflow Architect or Lotus Workflow Viewer, select the “Enable Sametime integration when application is launching” option.
   **Note** To make this preference work, you must select the “Automatically log me on” check box in the Log on to Sametime dialog box; see Connecting to Sametime.
4. Under Sametime community server, enter the host name of the Sametime community server, the port number, and the port number for application sharing.
   - The default port number is 1533 (Sametime’s well-known port).
5. Under Proxy type, select the appropriate proxy type option:
   - If your company doesn’t use a proxy server, select the No proxy option.
   - If your company uses an HTTPS Proxy, select HTTPS Proxy and, under Proxy server, enter the server name and port number of the proxy.
   - If your company uses an HTTP Proxy, select HTTP Proxy and, under Proxy server, enter the server name and port number of the proxy.
   **Note** For HTTP proxies, the default Sametime community server port number is 8082.
   - If your company uses a SOCKS proxy, see the instructions for configuring a SOCKS proxy.
6. Click OK.
To configure a SOCKS proxy

Follow these steps if you need to configure a SOCKS proxy for Sametime.

1. On the Sametime tab, select Use SOCKS4 proxy or Use SOCKS5 proxy.
2. Under Proxy server, enter the proxy server host name and port number.
3. Under Authentication (for Socks5 proxies only), enter your SOCKS user name and password.
4. Click OK to save your changes.

Connecting to Sametime

You can connect to the Sametime server from the Lotus Workflow Architect or from the Lotus Workflow Viewer.

Follow these steps.

1. From the Tools menu, choose Sametime and then Connect to Sametime.
   The “Log on to Sametime” dialog box appears.
2. Enter your user name in the User name field.
3. Enter your password in the Password field.
4. (Optional) To log onto Sametime automatically the next time you launch the Lotus Workflow Architect or Lotus Workflow Viewer, select the “Automatically log me on” check box.
   This option saves your password; next time you log on to Sametime, you will not be prompted to enter your password.
   **Note** To make this option work, you must also select “Log on to Sametime when application is launching” in the Sametime Preferences dialog box. If you haven’t already set this preferences option, click Connectivity to get to the Application Preferences dialog box, click the Sametime tab, select the “Enable Sametime integration when application is launching” option, and click OK to return to the “Log on to Sametime” dialog box.
5. Click Log On.
   As you are logging on, the message “Connecting to Sametime…” appears in the Status bar. Once you are connected, the Status bar displays a message with your user name indicating that you are connected to the Sametime server and an icon (a green square) indicating that you are online.
Disconnecting from Sametime

You can disconnect from the Sametime server when you are using the Lotus Workflow Architect or Lotus Workflow Viewer.

Do the following:

- From the Tools menu, choose Sametime and then Disconnect from Sametime.

Once you are disconnected from Sametime, the Status bar displays a message with your user name saying that you are disconnected from the Sametime server and a Lotus Workflow person icon indicating that you are offline.

Starting a Sametime chat

Once you have logged onto Sametime in the Lotus Workflow Architect or Lotus Workflow Viewer, you can start a Sametime chat from any properties page, business object library, or dialog box that displays lists of persons.

In any of these places:

- When a person is active in Sametime, a green square appears next to the person’s name.
- When a person is not active in Sametime, a red circle appears next to the person’s name.
- When a person doesn’t want to be disturbed, a circle with a line through it appears next to the person’s name.
- If a person is offline or not Sametime-enabled, a Lotus Workflow person icon appears next to the person’s name.

Tip  To get a comprehensive view people’s status in Sametime, Open the Business Object Library and choose View by Hierarchy. This view lets you view by Department, Workgroup, or Role. In these views you can see comprehensive lists of people at your site, and the icon next to a person’s name indicates the person’s Sametime status.
When a person is online in Sametime, to start a chat:

1. To chat with a person in the list, right-click the person’s name.
2. The Sametime Chat dialog box appears.
   - Type your message in the “Type your text” area.
   - Click Send. Responses will appear in the box above.
   - Click the Save button to save a transcript of your chat. You’ll be prompted for a filename.
   - Click Cancel to end the chat.
Chapter 3
Setting up Lotus Workflow Databases

About Lotus Workflow databases

The Lotus Workflow working environment

The Lotus Workflow working environment consists of several databases — some with user interfaces and some that serve only as repositories of information. These databases are created from templates delivered with the product. The owners, or administrators, of these databases are responsible for their design and content.

For an overview of the Lotus Workflow databases, see Databases in “Key concepts and terms.”

Depending on your organization, you may have some roles in addition to that of process designer.

- If you are also an application developer, you will design the forms and perhaps the user interface elements in one or more Lotus Workflow application databases.
- If you are also a Notes administrator, your job may include installing, configuring, and maintaining one or more Lotus Workflow databases.

If the Lotus Workflow databases have already been created specifically for your organization, your Lotus Workflow administration staff can tell you how to access them. If creating the databases is your job, see the documentation entitled “Lotus Workflow Installation and Administration Guide.”

The Lotus Workflow sample databases

To get you started as a Lotus Workflow process designer, a complete sample working environment, with sample databases, may have been installed on your local computer or made available on your organization’s network. You may also install the sample databases (and the Lotus Workflow Architect) yourself if you have access to the installation CD or a network directory containing the installation files.

See About the sample databases.
About the sample databases

Normal Lotus Workflow installation includes several sample databases that you can use to familiarize yourself with designing workflow processes.

They include the following, which comprise a working sample of the Lotus Workflow Engine:

- A sample application database with several process examples.
- A sample Organization Directory database already populated with workgroups, departments, and roles for an imaginary company.
- A sample Process Definition database with the process design elements and other business objects supporting the sample application database.

If you’re reading this documentation as a Notes Help file, the Architect has probably already been installed on your hard drive, and the sample databases have probably been installed either on your hard drive or on a server on your organization’s network. You may want to check with your Lotus Workflow administrator if you’re not sure.

If you’re sure Lotus Workflow has never been installed on your computer, see Installing the Architect and sample databases.

Once the sample databases are installed on your computer, you need to configure them. See Configuring the sample databases.

Installing the Architect and sample databases

The Lotus Workflow Architect and the sample databases are provided on a CD-ROM disc. The Architect and sample databases may be installed on an IBM-compatible computer running Windows 95, 98, NT 4.0, or 2000.

Follow these steps.

1. Close all running programs.
2. Insert the CD into the CD drive.
3. Click Start on the task bar and then click Run. Click the Browse button. Navigate to the CD drive and then double-click the folder for the language in which you want to install the software. Double-click Setup.exe and then click the OK button.
4. Follow the prompts and instructions in the installation program.
Configuring the sample databases

When you installed the Lotus Workflow Architect and sample databases, you may have been given an opportunity to set up the sample databases using a setup wizard. If you haven’t set up the sample databases yet, you can do it now by following these steps.

1. Open the sample application database.
   - If this is the first time you’ve opened it, you’ll see the About page with some basic information about the database.
   - If the database opens and you don’t see the About page, choose Help from the menu and then choose About This Database.

2. Click the button on the About page to activate the setup wizard.

3. Follow the on-screen instructions.
   - **Note** If the Sample Application database is being set up on a server, you can click a box to enter the server name and IP address. If you set up the Sample Application database locally and then replicate to a server, you can rerun the Wizard to enter the server information.

What the setup wizard does

The setup wizard does the following:

- It creates a person document in the Sample Organization Directory database, adding your Notes ID name and placing you into the Human Resources department and the Testperson role.
- It creates a setup document in the Sample Organization Directory database and makes your Notes ID the owner of that database. This allows you to create and modify all entries in the Sample Organization Directory database.
- It creates a setup document for the sample application database and does the following:
  - Sets the path and file name of the Sample Organization Directory database
  - Sets the path and file name of the Sample Process Definition database
  - Enables the Process Cache
  - Enables the reroute, subprocess, and Viewer log options
Updating the cache
After the setup wizard has run, open the Sample Application database and click Administration - Cache in the navigator pane. Then click the Update Process Cache button. This will update the process cache with the Process from the Sample Process Definition database. Also this will update the “Start New Job” box with the sample processes.

About the Lotus Workflow Architect
The Architect is a Windows program that allows you to do the following:

- Create graphical representations of Workflow activities.
- Link the activities together in a logical flow that routes work from activity to activity.
- Assign properties to each activity that determine its contents and who can work on it.

The resulting process can then be activated in the Process Definition database and used as a template for jobs that will be performed by people in your organization.

For a brief sketch of how Lotus Workflow works, see the Overview in About Lotus Workflow 3.0.

You can learn more about the Architect in the sections About the Lotus Workflow samples and About designing processes.

About the Lotus Workflow Viewers
The Lotus Workflow Viewer is a Windows program that lets workflow participants see the process diagram for a job they’re working on, along with details about each process step — deadlines, other participants, and so on. If the Viewer is enabled for your organization, it is automatically installed on the participant’s computer when he or she uses it for the first time.

The Lotus Workflow Web Viewer runs from a Web browser and has most of the functionality of the Windows-based viewer.

The Lotus Workflow Viewers duplicate most of the functionality of the Lotus Workflow Architect, except that users can’t create and save new processes or modify existing processes. Detailed instructions for using the Viewers are in the Lotus Workflow User’s Guide.
Chapter 4
Working with Lotus Workflow Samples

About the Lotus Workflow samples

The purpose of the Lotus Workflow samples is to allow first-time users to become acquainted with some of the basic features of Lotus Workflow. After you’ve set up and configured the sample databases and the Lotus Workflow Architect, you’ll find examples of many of the concepts and elements that process designers can use in building workflow processes with Lotus Workflow.

Four sample processes are included in the sample application database. Two of them demonstrate the integration between Lotus Workflow and Domino.Doc; they require the installation and setup of Domino.Doc to operate fully. The other two processes can be explored with just the Notes client, or with a Web browser if the sample databases are installed and configured on a Domino server. The samples cover simple but typical processes found in organizations today.

Purchase Order

The purchase order process tracks the approval of a purchase request and includes conditional routing of the work’s activities based on the amount of the purchase request. Workflow features to explore include the following:

- Work assignments based on a formula (approval is routed to the manager of the person initiating the request).
- Recording of a decision (approval or non-approval of the request) and routing based on the decision.
- Condition routing based on a formula (request over or under a certain amount).
- Automatic notification to the job’s initiator if the request isn’t approved.
- Hiding of a document’s elements depending on the activity’s status.
Employee Hiring

The new hire process tracks the requisition approval, interview, and hiring process for a new employee. Workflow features to explore include the following:

- Team activity, in which more than one person may work on an activity at the same time (selecting candidates).
- Work assignment based on a job property (selection of candidates is assigned to the person who initiated the job).
- Work assignment based on a formula (candidate selection is reviewed by the manager of the person who initiated the job).
- Routing based on decisions made during an activity (the manager authorizes the hiring, rejects the request, or sends the request back for changes).
- E-mail notification to workflow participants.
- Parallel routing (setting up interviews and checking references can be done at the same time by different people).
- Joining of separate activities (from parallel routing) into a later activity.
- Use of two different document forms depending on which activity is current.

The following processes demonstrate integration between Lotus Workflow and Domino.Doc. To run jobs with these processes, you must have Domino.Doc installed and configured. See the Domino.Doc and Domino (or Lotus) Workflow integration guide for detailed information about how to set up and configure Lotus Workflow and Domino.Doc to explore these processes.

Web Publishing

Design and content for a Web page go through several stages of review and potential rework. This process supports the updating of Web content stored in Domino.Doc. Workflow features to explore include the following:

- Automated activity that uses the Domino.Doc check-out agents (checking out a document and attaching it to a job).
- Rework loops.
- Decisions (the Web master’s check of the Web page content).
- Conditional routing that depends on the values in the fields of a document.
- Automated activities that use the Domino.Doc check-in agents (checking in a copy as a new draft).
Custom automated activity that publishes the Web page contents to the Web site.

Use of six different document forms based on which activity is current.

Expense Report

An expense report is created and moves through the approval process. Workflow features to explore include the following:

- Event-based job initiation from Domino.Doc.
- Parallel routing and joins (getting the customer record and approving expenses).
- Automated activity using the Domino.Doc search agent (getting a customer record).
- Hiding of a document’s elements depending on the activity’s status.

**Note** You may notice that the expense report doesn’t display in the New Job dialog box of the application database. Jobs running under this process are intended to be initiated from within Domino.Doc and shouldn’t be available for job initiation directly from within the application database. In the Lotus Workflow Architect, you’ll notice that this process appears in dialog boxes surrounded by parentheses. The parentheses hide the process from users in the application database.

You can explore the processes in the sample application database by starting the Architect and selecting the sample databases. See Exploring the sample processes.

Exploring the sample processes

You can use the Lotus Workflow Architect to examine and modify the sample processes and practice creating new processes.

Follow these steps.

1. Start the Architect:
   - If a shortcut icon is on the computer’s desktop, double-click it.
   - You can also launch the architect from Start - Programs - Lotus Workflow 3.0 - Lotus Workflow Architect.
   - The Architect will open.

2. Choose Open Process from the File menu. You should see a list of sample processes.

3. Select Purchase Order and click OK.
Note If you don’t see any sample processes, it’s probably because the sample databases haven’t been loaded. Click File - Open Databases. In Profiles, choose Sample.

- Make sure the Design Repository, Organization Directory, Application, and Process Definition appear in the Data Source Type list. If they don’t, see your Lotus Workflow administrator.
- Click OK and choose Open Process again.

Basic features
The purchase order process diagram will display in an area of the Architect called the process window.

1. Notice the following features:
   - Steps in the process are represented by circles and boxes.
   - The circles mark the start and end points of the process.
   - The boxes represent activities to be completed by workflow participants.
   - The arrows between the steps show how work is routed between activities.
   - All activities, and some of the routing arrows, are labeled.

2. Right-click on any of the elements in the process diagram. A pop-up menu will display, allowing you to view one or more of the following dialog boxes:
   - Basic Properties.
   - Advanced Properties.
   - Routing Relation Properties (on the arrows).

   The pop-up menus also display operations you can perform, such as showing the following or preceding nodes, reversing the routing relation arrows, and so on.

3. Take a few minutes to explore the options in the pop-up menus and the properties dialog boxes. Don’t worry about the details at this point. Detailed instructions for setting properties appear elsewhere in the documentation.

Caution If you make any changes in the process diagram or the properties, be sure that you don’t save them. You can close the process diagram without saving the changes.

4. Right-click on the background of the process diagram. Explore the Basic Properties and Advanced Properties dialog boxes. These are properties for the process as a whole.
5. Try the other elements in the interface — the toolbox, the button bar, and the menus. Details on using these elements appear in this documentation in the section on designing processes.

6. Close the process diagram: Choose Close from the File menu. If you’re prompted to save the process, click No.

7. Open and examine the other processes, following the steps above.
Chapter 5
Designing Processes

About designing processes

Designing a process involves several operations. While there are probably as many ways to design processes as there are process designers, you may find the following discussion helpful.

Planning the process

The sources for the processes you design can include existing paper-based procedures, instructions from managers or supervisors in your organization, your own ideas, and so on. The planning stage typically involves people from different departments and roles in the organization. You may have one or more other roles in addition that of process designer. However, as the process designer, you must create the basic architecture for the Lotus Workflow processes. Here are some points to consider:

- **What is the “work product” of the process?** It may be a purchase order; a combination of events and documents required to hire, orient, and train a new employee; a set of mechanical drawings for a new part; a monthly report; an inventory of available components for assembling a product; or anything else.

- **What forms are required for the process?** The application developer, probably one of the Lotus Notes / Domino professionals in your organization, designs Lotus Workflow-enabled documents using Domino Designer and the templates provided with Lotus Workflow. These may be new documents or adaptations of documents already used in your organization.

- **Which document will be the main document (if there’s more than one)?** There can be only one main document in each activity. Will the format of the main document change depending on the work being performed on it?
• **What are the basic steps of the work to be performed?** Your organization’s managers or supervisors may have very clear ideas, or only sketchy notions, about this. As you become proficient in designing processes, your knowledge can become a valuable asset in planning the work procedures for your organization.

• **Who should be in charge of each step?** The basic steps and their owners are interdependent. A basic step in a process — an “activity” in Lotus Workflow — should have an owner that you can identify easily in the organization. This activity owner may be a single person in the organization, but it’s almost always better to identify an activity owner by workgroup, role, or department - categories available in the Organization Directory database.

  **Tip**  
  Even if only one person in your organization can be authorized to complete a given activity, have the Organization Directory owner assign him or her to a role. Then use that role as the activity owner. The advantage of using departments, workgroups, or roles is that personnel changes can be reflected in the Organization Directory without your having to revise your processes.

  As you review the basic steps, you may find that some can be combined into a single activity under a single activity owner and that some may have to be split into two or more activities because different people must be in charge of them.

• **Who can help?** Although each activity can have only one activity owner, you can assign other people in the organization to a team to assist the activity owner. The use of teams gives Lotus Workflow tremendous flexibility, both at the time you create processes and during the execution of a job. Activity owners can modify an existing team or assemble their own team during a job.

• **What activities can be automated?** Some process steps can take place without having to have an activity owner: Mail can be sent, databases can be searched, and so on.

• **Who can start the job?** A special category of activity owner is the initiator — the person who can claim the first activity. The first activity, however, may not be the start of a job. Jobs can be started by external events: filling out a form in a Notes database (form-based initiation) or on a Web page (mail-based initiation). You’ll need to work with the application designer and perhaps other people in your organization to implement ways to start a job from outside Lotus Workflow.
• **What is the logical flow of the work?** Think of such factors as order of execution (some things must happen before others), conditional branching (choosing an activity from among two or more, depending on the outcome of the previous activity), parallel activities (two independent steps performed by different people at the same time), timing (what’s the deadline; what should happen if it’s missed), and so on.

• **Is this process part of a larger process, or several larger processes?** It isn’t too early to be thinking about how parts of a process can be reused in other processes. By creating subprocesses, your workflows can be more standardized and easier to maintain. Don’t worry if you can’t answer this question yet; Lotus Workflow is very flexible, and revisions of existing processes are easy to do.

• **Does your organization use Domino.Doc?** You may be able to plan workflow processes around Domino.Doc’s powerful document management capabilities. Ask your Notes or Lotus Workflow administrator for access to the Domino.Doc Integration Guide if it’s not already available on your computer.

**Laying out the process**

The Lotus Workflow Architect can be used as a powerful and intuitive “scratch pad” for laying out workflow processes. You can quickly rough out the basic steps and logical flow of a process, labeling each node in the diagram but not assigning any properties at first. You can print the diagram directly from the Architect or copy it to the Windows clipboard and paste it into a document for review by others in your organization. (A color printer is helpful but not essential.) Processes can be saved to the Design Repository database without activating them in your Workflow system.

You may also find other methods suitable for your first attempts at laying out processes:

• Sticky notes and poster board let you plan large-scale processes while keeping the entire process visible.

• A white board is useful for group presentations or planning.

**Assigning properties**

As you saw in Working with the Lotus Workflow samples, each process, activity, and routing relation has certain properties assigned to it. Once you have created at least a rough process diagram in the process window of the Architect, you can begin to assign such properties as job owners, activity owners, task lists, teams, deadlines, and so on.
Activating the process

When your process has been designed and approved, you will activate it. This means that the process definition will be saved to the Process Definition database and will also become available to people in your organization for initiating and completing jobs. When you activate a process, the Architect performs a test to be sure that the process logic and syntax are correct. (You can also perform this test manually before activation.)

On to the specifics

You’ll find detailed instructions for creating Lotus Workflow processes at the following topics:

Opening the databases
Creating the process diagram
Assigning properties
Using the Business Object library
Writing and testing formulas
Checking process syntax
Activating a new or old process
Generating and viewing reports
Job initiation by external events

Opening the databases

When you design a new process, you may have to decide which Lotus Workflow databases to use. These databases will have been created by someone on your Lotus Workflow team based on templates supplied with Lotus Workflow. They include the following:

- The Design Repository database, which stores the basic graphic elements of your design and any processes while they’re being designed.
- An Organization Directory database, which stores information about people and groups of people in your organization.
- The Process Definition database, which stores finished processes that are used as the basis for running jobs.
- One or more application databases, which contain the forms and documents for jobs, and information about currently running jobs.
Notes

1. There may be more than one of any of these databases, especially in very large organizations.

2. The most likely multiple databases are application databases, each of which may be dedicated to a particular kind of work.

3. Organization Directory databases may be divided among large departments or functional units, or by geography if your organization exists in several locations.

4. The Organization Directory can be supplemented by other databases, for instance, the Domino Directory, or the Domino Directory with LDAP authentication for persons.

5. The other databases may have separate versions based on convenience, location, or function. However, single Design Repository, Organization Directory, and Process Definition databases can serve multiple application databases.

Caution We strongly recommend against using the sample databases as the basis for your organization’s Workflow processes. Doing so can cause replication conflicts and other problems in your network. On the other hand, you may want to use the sample databases for practice in designing processes before you move to your organization’s “official” databases.

Follow these steps to select and open databases for creating processes.

6. Start Lotus Notes if it isn’t already running. Lotus Notes must be running on your computer for the Lotus Workflow Architect to work properly.

7. Start the Lotus Workflow Architect.
   - If the Architect shortcut icon isn’t on your desktop, you’ll find the program icon in the Start menu under Programs - Lotus Workflow 3.0.

8. Type your Notes password if you’re asked for it. This is managed from within Notes; you can’t change the password from within the Architect. The high level of Notes security is never compromised.

9. In the File menu, choose Open Databases. The Data Sources dialog box will display.

10. Create a new profile (if you don’t already have one that you want to use). Click the New button and enter a name for your profile.
11. Select the databases. Highlight each Data Source Type in the box and then click the Browse button. Choose the appropriate server and database and then click OK.

- Your Lotus Workflow staff can tell you where the databases are on your organization’s network.
- You will need the Design Repository database, an Organization Directory database, an application database that was created for the processes you will be designing, and the Process Definition database.
- One or more Organization Directories may be available. Two common arrangements are (1) the Domino Directory for person documents and the Lotus Workflow Organization Directory for groups and roles, or (2) a dedicated Lotus Workflow Organization Directory Database for group and role information.

**Caution**  To function in process designs, records in the Domino Directory must be available to the server on which the Organization Directory is located.

- The Lotus Workflow Organization Directory can be set up to contain Resources pointing to additional Organization Directories. When using more than one Organization Directory, you must select the Notes Organization Directory and the Resource Database as Data Source Types and then browse for and add the Lotus Workflow Organization Directory database as the Notes Organization Directory.

**Note**  You can set up a profile that has no data sources except the Design Repository database. Such a profile might be useful for managers who want to sketch out processes, save them, and have the Process Designer edit and complete them with all the needed properties.

- To remove a data source type, highlight it in the Data Source type list and click the Remove button.

For details on data source types, see Selecting a data source type.

**Selecting a data source type**

Follow these steps to select data source types.

1. From the Data Sources dialog box, click Add.
2. Highlight a data source type.
3. Click OK to enter the data source type in the Data Source type list in the Data Sources dialog box, or Cancel to return to the Data Sources dialog box without changes.
Note You can select only one instance of data source type at a time. For instance, you can select only one Organization Directory type. If you want to replace one instance with another, highlight the old one in the Data Sources dialog box and click the Remove button.

Note The Organization Directory types are as follows:

- **Notes** — These include the Lotus Workflow Organization Directory, the Domino Directory, the LiSA Directory, and any other directory that consists of a Notes database and for which a mapping file has been created (see below).

- **DLL** — These are directories for which a Windows interface has been provided in a DLL (dynamic link library) file.

- **LDAP (Lightweight Directory Access Protocol)** — This is served from an LDAP server over a network. As delivered with Lotus Workflow, LDAP is configured for person and group records. Organization Directories are “mapped” into Lotus Workflow through mapping files that were installed automatically. These mapping files are highly flexible and customizable through the Lotus Workflow Software Developer’s Kit.

Note If you select the LDAP Organization Directory type, the Data Sources dialog box will change to ask you for additional information. See Logging on to an LDAP server.

Note If you want to use more than one Organization Directory, select the Notes-Based Organization Directory type. Your Workflow administrator must then enter Organization Directories as resources in the Lotus Workflow Organization Directory database.

Logging on to an LDAP server

If you select LDAP Organization Directory from the Select a Data Source Type dialog box, the Data Sources Dialog box will provide a place to type in additional information.

Follow these steps.

the Host name and Port number of the LDAP server. (You can get this name and number from your Workflow administrator.)

1. Type in the Host name and Port number in the boxes. (The Port number is usually 389; your Workflow administrator can give you the details.)

2. Check Login as anonymous unless you want people using the Architect to provide a username and password.
3. Click OK to enter the information or Cancel to abandon your changes.

4. If you have not checked Login as anonymous, a dialog box “Log on to LDAP server” will appear. Enter your Username and Password and click OK. (See your Workflow administrator for details.)

Tip If you would like to use the Resources from the Lotus Workflow Organization database, you can add the data source type Resource Database and enter the Lotus Workflow Organization Database path to it. This will give you access to Relations, Job Properties, etc.

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Creating the process diagram

If you’ve examined the processes in the sample application database, you’re already familiar with how a process diagram looks and how the graphical elements work together.

To begin creating a process diagram for your organization, you need to have the correct databases open. These are the databases your Lotus Workflow administrators have designed and moved to a server that is available to you.

You can also create new processes in the sample databases provided with Lotus Workflow. They may be local (on your computer only) or on a server.

There are advantages to working on either set of databases.

- If you work only on the sample databases, you may feel freer to experiment and make mistakes. Processes that you design with the sample databases can’t become part of your organization’s actual workflow environment, however. Also, the databases especially designed for your organization may follow somewhat different designs from those in the samples.
- If you work on your organization’s “official” databases, your process designs can be implemented as part of the actual workflow environment in your organization.

Learning the tools
To create and work with process diagrams, you’ll need to know how to use the menus and tools in the Architect. Here are the topics you’ll want to cover in learning about process diagrams:

Starting a new process

Basic navigation

Using the menus
Using the toolbar

Using the toolbox

You may want to lay out the process diagram all at once and then assign properties to it, or you may want to assign properties as you go along. The relevant topics are as follows:

Assigning properties

Using the Business Object library

Note  When you use the Business Object library, you reuse objects you’ve created previously — including both the drawing elements and their properties. Objects are available in the BOL once they are saved.

Starting a new process

You can start a new process by creating a blank process window or by modifying an existing process.

• To start with a blank process window, click File - New in the menu.
• To create a new process by modifying an existing process, click File - Open Process in the menu. Select a process in the Open Process dialog box and click OK. The process window will display the process. Modify the process and use Save As from the File menu. When the Save As dialog box appears, type in a new name and click OK.

Basic navigation

The Lotus Workflow Architect has a flexible and highly customizable interface. Most of the on-screen panels can be relocated by clicking and dragging the mouse pointer on the two ridges at the edge of the panel. The panels can be dragged to any edge of the Architect window, or dropped in the middle, where they’ll “float.”

The panels can also be hidden, using the Options menu to toggle them on and off. The largest area of the Architect window is the process window, where you create process diagrams. The other large area is the Business Object library, a list of design elements from the Design Repository database and the Organization Directory database that you can use in creating process diagrams.

The Lotus Workflow Architect has many enhanced accessibility features. See Accessibility features for details.
**Accessibility features**

The Lotus Workflow Architect incorporates keystrokes or keystroke combinations for nearly everything you can do with a mouse. These include all the standard Windows shortcuts plus several others that are dedicated to the Architect.

Shortcuts appear in the menus next to each menu item. Most of them consist of a combination of the Ctrl key and some other key; for example, Ctrl+X to cut copy to the clipboard.

### Windows shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift+F10 or Windows Applications key</td>
<td>Open the context menu (pop-up) for the selected object.</td>
</tr>
<tr>
<td>Alt or F10</td>
<td>Move the focus to the menu bar.</td>
</tr>
<tr>
<td>Ctrl+X or Shift+Delete</td>
<td>Cut the selected object to the clipboard.</td>
</tr>
<tr>
<td>Ctrl+C or Ctrl+Insert</td>
<td>Copy the selected object to the clipboard.</td>
</tr>
<tr>
<td>Ctrl+V or Shift+Insert</td>
<td>Paste the object from the clipboard.</td>
</tr>
<tr>
<td>Ctrl+Z or Alt+Backspace</td>
<td>Undo the last action.</td>
</tr>
<tr>
<td>Ctrl+Y or Alt+Shift+Backspace</td>
<td>Redo the previous undo action.</td>
</tr>
<tr>
<td>Ctrl+A</td>
<td>Select all objects.</td>
</tr>
<tr>
<td>Ctrl+N</td>
<td>Create a new process diagram.</td>
</tr>
<tr>
<td>Ctrl+O</td>
<td>Open the Open Process dialog box.</td>
</tr>
<tr>
<td>Ctrl+S</td>
<td>Save the current process.</td>
</tr>
<tr>
<td>Ctrl+P</td>
<td>Open the Print dialog box.</td>
</tr>
</tbody>
</table>

### Architect shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl+D</td>
<td>Open the Delete Process dialog box.</td>
</tr>
<tr>
<td>Ctrl+F</td>
<td>Open the Search Business Object Library dialog box.</td>
</tr>
<tr>
<td>Ctrl+G</td>
<td>Open the Diagram Properties dialog box to the Grid tab.</td>
</tr>
<tr>
<td>Ctrl+L</td>
<td>Open a panel containing an instance of the Business Object library.</td>
</tr>
<tr>
<td>Ctrl+W</td>
<td>Show the Diagram Overview window.</td>
</tr>
<tr>
<td>Ctrl+0</td>
<td>Insert a straight line. Use arrow keys to select the beginning node and press Enter. Use arrow keys to select the destination node and press Enter.</td>
</tr>
</tbody>
</table>

*continued*
<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl+1</td>
<td>Insert an angled line. Use arrow keys to select the beginning node and press Enter. Use arrow keys to select the destination node and press Enter.</td>
</tr>
<tr>
<td>Ctrl+2</td>
<td>Insert an activity.</td>
</tr>
<tr>
<td>Ctrl+3</td>
<td>Insert a process link.</td>
</tr>
<tr>
<td>Ctrl+4</td>
<td>Insert a cluster.</td>
</tr>
<tr>
<td>Ctrl+5</td>
<td>Insert an automated activity.</td>
</tr>
<tr>
<td>Ctrl+6</td>
<td>Insert a decision point.</td>
</tr>
<tr>
<td>Ctrl+7</td>
<td>Insert a start node.</td>
</tr>
<tr>
<td>Ctrl+8</td>
<td>Insert an end node.</td>
</tr>
<tr>
<td>Ctrl+9</td>
<td>Insert a label.</td>
</tr>
<tr>
<td>Alt+0</td>
<td>Set the focus to the main Business Object library workspace.</td>
</tr>
<tr>
<td>Alt+1 through Alt+9</td>
<td>Set the focus to a Business Object Library that you’ve opened with Options - New Library or Ctrl+L.</td>
</tr>
<tr>
<td>Arrow keys</td>
<td>Navigate among nodes and select each one in turn.</td>
</tr>
<tr>
<td>Shift+Arrow keys</td>
<td>Move the selected node. The amount moved depends on the Grid setting.</td>
</tr>
<tr>
<td>Ctrl+Tab</td>
<td>In a tabbed dialog box or the Business Object Library workspace, move from tab to tab.</td>
</tr>
<tr>
<td>Alt+Enter</td>
<td>Open a Properties dialog box for the selected object.</td>
</tr>
<tr>
<td>Esc</td>
<td>If the focus is on the Business Object library workspace or on an instance of the library, the focus moves to the process diagram. If the focus is in the process diagram and one or more nodes are selected, all will be unselected. If a drawing object is being used, the “Select items” arrow will be restored. If a label is open for editing, it will be exited without change.</td>
</tr>
<tr>
<td>F2</td>
<td>Enter edit mode for the label of a selected object.</td>
</tr>
<tr>
<td>F4</td>
<td>Exit the edit mode and keep any changes made.</td>
</tr>
<tr>
<td>Ctrl+F7</td>
<td>Start Lotus Notes and open the application database.</td>
</tr>
<tr>
<td>Ctrl+F8</td>
<td>Start Lotus Notes and open the Organization Directory.</td>
</tr>
</tbody>
</table>

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Using the menus

At the top of the Architect screen is a series of pull-down menus. They’re your gateway into most of the Lotus Workflow Architect’s features.

Tip  You can use the menus without a mouse. See Accessibility features.

Conventions

When you click on a menu item, a list of commands drops down. In this documentation, we tell you to choose a menu item: “Click on File and choose Print.” This means that you should position the mouse pointer over “File,” depress the mouse button, move the mouse pointer down to the line that says “Print,” and release the mouse button. An alternative way of saying this in the documentation is to separate the commands with a hyphen: “Choose File - Print.”

Keyboard commands appear occasionally in the documentation. A plus (+) between key names means hold the first key down, press the second key, and then release both of them: “Press Ctrl+P to display the Print dialog box.”

First steps

If you haven’t done so already, follow these steps to familiarize yourself with the menus.

1. Click on File - New Process. A blank process window will open. The reason for doing this is to make at least some of the menu items active and therefore easier to read.

2. Click on File again. You may want to arrange your hand so that you don’t accidentally click on anything more.

- Look down the list of File menu items and notice that the general layout and many of the command names are familiar. The general layout of menu items has become standardized over the past several years, and the Architect adheres to those standards.

- Notice that most of the commands have an underlined letter, or “accelerator,” which you can press for instant access without the mouse. The top-level items (File, Edit, and so on) also have underlined letters. You can activate these by holding down the Alt key as you press the letter key. Once you’re in the menu area, you don’t need the Alt key to navigate the menus.

- You can use the cursor keys to navigate the menus and the Enter key to activate menu commands.

- To return to the process window, click in the process window or press the Escape key one or more times until none of the menu items is highlighted.

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• Notice that many commands are also labeled with a keyboard shortcut. You can activate these commands without using the menus. For example, to display the Print dialog box while you’re working in the process window, you can press Ctrl+P. The Print dialog box will appear without the use of the menus.

3. Click File - Close.

Tip: A brief explanation of most items in the user interface appears when you pause the mouse pointer over them. A slightly longer explanation appears in the status bar at the bottom of the Architect window.

Explanations for the menu items continue in the following topics:

File menu
Edit menu
Options menu
Tool menu
Window menu
Help menu

**File menu**

The File menu controls anything having to do with entire files — opening them, closing them, printing them, and so on.

**Open Databases**
Displays the Data Sources dialog box. Select the databases that will be the basis for processes you are building. You can save collections of databases as profiles. Your Lotus Workflow administrators can tell you where to find the databases you need. If you always use the same profile of databases, the Architect remembers them, so you will rarely, if ever, need to use this menu item. When you first start working with the Architect, you may be switching between the sample databases and your production databases. See Opening the databases for details.

**New Process**
Opens a blank process window so that you can begin to create a new process design.

**Open Process**
Displays the Open Process dialog box. Select an existing process to open for inspection or revision. Notice that a description of each process, if one has been written, appears in a box as you highlight each process. For details, see Opening processes.
Save Process
Saves the currently displayed process to the Design Repository database. A saved process design isn’t available for jobs until it has been activated.

- If your process design has never been saved, clicking Save Process will display the Save Process dialog box. See Saving new processes or copies of existing processes.
- If you enter the name of an existing process, you’ll be asked whether you want to overwrite the existing process. See Save Process As, below.

Save Process As
Displays two choices: Copy and New Version.

- Choose Copy if you are editing an existing process and want to save it to a different name. You might do this if you are creating a new process based on an existing one. When the Save Process dialog box appears, enter a name and description and click OK. See Saving new processes or copies of existing processes.
- Choose New Version if you are editing an existing process and want to create a new version of it. You might do this if you are simply updating an existing process. When the Save As dialog box appears, enter a description of your changes and click OK. See Saving a new version of a process.

Delete Process
Deletes a process, or a version of a process, from the Design Repository database. See Deleting processes for details.

Save All
Saves all processes that are open in the process window. If any new process hasn’t been named, the Save Process dialog box will appear and prompt you for a name.

Close
Closes the process currently displayed in the process window. If you’ve made changes to the process, you’ll see a prompt. Click Yes to save your changes and close the process or No to close the process without saving your changes.

Close All
Closes all processes you have open. If you’ve made changes in an existing process, or if you have created a new process without naming and saving it, you’ll see corresponding prompts.
Import
Allows you to import a process from a file. You can import native Lotus Workflow files or other workflow files saved in XML format. See Importing processes.

Export
Exports the process currently in your process window to a stand-alone file. You can export to the Lotus Workflow native format or to the XML format. See Exporting processes.

Activate Process
Activates the process currently displayed in the process window. Activation makes a process available for starting jobs. See Activating a new or old process for details.

Printer Setup
Allows you to select printer options such as printer, paper, paper orientation, and so on. Help for this function depends on your operating system and the printer(s) you have installed.

Tip
Printouts will be sharper if you select raster graphics. Click the Properties button and choose the Graphics tab. Select Raster graphics.

Page Layout
Lets you select information to appear in headers and footers in a printed version of a process diagram. The Page Layout Properties dialog box lists the elements you can choose. See Setting page layout properties.

Print Preview
Allows you to see, on-screen, what your printout will look like. See Viewing a preview of a printed process diagram.

Print
Prints the current process diagram. Depending on how your computer and printer are set up, you may have setup options including printer choice, paper source, and so on. These are governed by your operating system and printer drivers.

Report
Allows you to create a report of the current process, or a report definition for formatting a report. For details on this topic, see Generating and viewing reports.

Files Recently Edited
Lists the last 10 process design files you’ve had open for editing.
Exit
Quits the Lotus Workflow Architect. You’ll be prompted to save any unsaved work.

Opening processes
Select an existing process to open for inspection or revision. Notice that a description of each process, if one has been written, appears in a box as you highlight each process.

All processes are listed here — under development, activated, and superseded by later versions.

- Click the Versions button to see the status of a process and its alternative versions. Versions listed with an arrow next to them have been activated in the Lotus Workflow system.
- Click the Info button to see additional information about a process version: the application database to which it was activated, who activated it, the date, and so on.
- Click the Basic button to return to the basic dialog box.
- Click Open to display the currently highlighted process or version of a process. The process diagram will display in the process window, ready for editing.

Saving new processes or copies of existing processes
The Save Process dialog box appears if you save a new process or choose Copy from the Save As menu.

- When the Save Process dialog box appears, enter a name and description and click OK.

Remember that a process becomes part of your Lotus Workflow work environment only when you have activated it.

Saving an old version of a process
The Save old version dialog box appears if you save or close a process that is an older version of an existing process.

Follow these steps.
1. Choose “new version of this Process” to create a new version. The old version will be preserved and you will be asked for a description of the new version.
2. Choose “copy” if you want to create a new copy of the process. You will be asked for a new process name.
3. Click OK to proceed or Cancel to return to the workspace.
Saving a new version of a process

The Save As dialog box appears if you choose Save As - New Version from the menu.

- Enter a description of your changes and click OK.

Remember that a process becomes part of your Lotus Workflow work environment only when you have activated it.

Deleting processes

The Delete dialog box allows you to delete a process or versions of a process.

- Highlight a process and click Delete to delete all versions of a process, along with all of its activities and automated activities.
- Click the Versions button, select a process and any versions you want to delete, and click Delete to delete individual versions of a process.

Caution  Anything you delete disappears permanently from the Design Repository database. There is no undelete function.

Caution  This action doesn’t delete the process from the Process Definition database because some jobs may still be running under this process. Also, it’s still possible to initiate new jobs under the process. The application database owner can prevent new jobs from starting by editing the Application Setup document to list explicitly the processes that can be used to start new jobs.

Importing processes

You can import a process from a file in either the Lotus Workflow native format or in XML format.

1. Select a filter: LWF file or XML file, depending on the source file’s format.
   - If you select XML file, click the Options button and choose a validation scheme. See Import options for XML files.
2. Enter the filename of the process you want to import. Click Browse to search your hard drive or network for a file.
3. Click OK to import the file.

The process will appear in your process window.

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Import options for XML files

Follow these steps.

1. Choose a validation option:
   - “Using internal DTD/Schema after loading XML file” uses Lotus Workflow’s internal specifications to validate the file.
   - “Using DTD/Schema specified in XML file” uses the specifications contained within the file.
   - “No validation” will load the XML file without validating it.

2. Click OK to accept your choice or Cancel to return to the Import Process dialog box with no changes.

Error types

- If the root element of the XML file isn’t <Process>, an error message will inform you that this is not a Lotus Workflow file.
- Validation errors will be reported giving some detail of the problem.
- Missing organization units or business objects will be reported along with references to their Ids.

Exporting processes

You can export a process design to a stand-alone file in either the Lotus Workflow native format or in XML format in any of several coding options.

1. Select a filter to determine the format of the output file: LWF file or XML file.
   - If you select XML file, click the Options button to choose an encoding option. See Export options for XML files.

2. Enter a filename. Click Browse to search your hard drive or network for a folder in which to place the exported file. The file extension .lwf or .xml will be added automatically.

3. Click OK to export the file.

The file will be converted and saved to the location you’ve designated.
Export options for XML files

Follow these steps.

1. Select the coding used to export the XML file.
2. Choose “Export Layout Information” if you want the positions of the activities and other nodes to be exported. This is useful if you export the process definition to other workflow tools.
3. Click OK to accept your changes or Cancel to return to the Export Process dialog box without changes.

Setting page layout properties

The Page Layout Properties dialog box lets you determine the contents of the header and footer of pages when you print a process diagram.

Follow these steps.

1. Choose the Header or Footer tab.
2. Select an element to include and click the >> symbol to place the element at the left, center, or right of the page. The element will appear in the text box. You can use the arrows at the right of the text box to rearrange the order of elements.
3. Click the element after it appears in the text box. Options for preceding and following text, and for format, will appear. Select the options and click OK. The Preview area of the dialog box shows your selections.
4. Click OK when you’re satisfied with the layout.

Viewing a preview of a printed process diagram

The dialog box displays the first page of the process diagram.

1. Use the buttons and the scroll bar to view each page.
   - The Print button prints the process diagram.
   - The Next Page and Prev Page buttons go from page to page.
   - The Zoom buttons magnify or reduce the on-screen image (not the size that will print).
   - The Two Page button toggles between a single-page view and a two-page spread (if there is more than one page).
   - The Close button exits the print preview screen.
2. If you’re satisfied with the image, click Print to print the diagram. If you need to make further adjustments, click Close to return to the display window.
Edit menu

The Edit menu provides commands for cutting, copying, deleting, and pasting items in the process diagram, as well as undo and redo functions.

Selecting items to cut, copy, or delete

- Select a node or connector by clicking once with the left mouse button.
- Select contiguous multiple elements by holding down the left mouse button and dragging a box around the elements.
- Select separate multiple elements by holding down the Shift key as you click on each item with the left mouse button.
- Select all items by pressing Ctrl+A or using Select All in the menu (see below).
- Deselect all items by clicking once anywhere in the process diagram.
- Deselect individual items by holding down the Shift key and clicking on them.

Undo

Reverses the most recent action, such as deletions, moves, creation of new nodes, etc. Up to 200 actions are stored for successive undos. Some actions aren’t included in Undo, such as zooming and scrolling.

Redo

Reverses the most recent undo. If you undo an action by mistake, Redo will restore that action.

Cut

Cuts the highlighted area of the process diagram to the clipboard. The highlighted material is removed from the process diagram.

Note  Connectors in a process diagram are cut along with any highlighted node they connect to. However, connectors are placed on the clipboard only if both of the nodes they connect have also been highlighted. If you then paste the node(s) into a process diagram, some connectors may be missing. If you’ve cut a node by mistake, use Undo to restore it, not Paste.

Copy

Copies the highlighted area of the process diagram to the clipboard without removing it from the process diagram.

Note  When you copy process diagram nodes to the clipboard, the connectors are copied only if both of the nodes they connect are also copied.
**Paste**
Pastes the contents of the clipboard into the process window.

**Delete**
Deletes the highlighted material. When process diagram nodes are deleted, any connectors touching them are also deleted.

**Select All**
Selects and highlights the entire process diagram.

**Insert**
Opens a sub-menu with choices for inserting drawing objects into a process diagram. These choices duplicate the available tools in the toolbox. See Accessibility features for details.

**Properties**
Opens the Properties dialog box for the selected object, or for the process if no object is selected. If more than one object is selected, the Properties dialog box is opened for the one that was created first.

**Note** Advanced Properties dialog boxes cannot be opened in this way. To open the Advanced Properties dialog box without the mouse, press Shift+F10 and choose Advanced Properties from the context menu.

**Process menu**
The Process menu displays process properties dialog boxes, checks the syntax in the process diagram, and allows you to create clusters from multiple nodes.

**Basic Properties**
Displays the Basic Process Properties dialog box. See Assigning properties to the process.

**Advanced Properties**
Displays the Advanced Process Properties dialog box. See Assigning properties to the process.

**Check Syntax**
Starts a routine in the Architect to check essential process and activity properties, routing relations, and so on. Results are displayed in a dialog box that indicates what needs to be fixed. See Checking process syntax.
Show Path Between Nodes
Shows all possible routing paths between two objects in a process diagram.

1. Click on the first object to highlight it.
2. Hold down the Shift key and click on the second object.
   **Note** The order of selection is important. The first object clicked must be the object from which the routing path will take place.
3. Click Process - Show Path Between Nodes.
   The path between the nodes shows in a contrasting color. If more than one path is possible, you can choose it from a dialog box that pops up over the process window.
   **Note** Another way to show the path is to select the objects and then right-click on the process background. A pop-up menu will include the command Show Path Between Nodes.

Cluster Selected Objects
Collapses selected objects into a cluster to simplify the process diagram.

1. Select items by holding down the Shift key and clicking on them. You can also hold down the left mouse button and drag a box around contiguous items.
   **Note** It doesn’t make sense to select non-contiguous items to include in a cluster.
2. Click Process - Cluster Selected Objects
   You can view items inside a cluster by double-clicking on the cluster. The cluster contents are displayed in a new process window. Any other nodes that occur before or after the cluster are shown as inactive objects.
   For more details about clusters, see the Cluster tool topic under Using the toolbox.
Options menu

The Options menu contains items that help you determine how things look in the Architect and in the process window.

Preferences

Lets you change the display properties of the objects in the process window. The dialog box has four tabs:

- **Attributes** lets you select the properties (attributes) that will display for each element in the process diagram — activity, routing relation, automated activity, decision point, and so on. See Setting application preferences — attributes for details.
- **Language** lets you select the language that will be used for the user interface. See Setting application preferences — language for details.
- **Style Sheet** lets you choose how the graphic elements in Workflow appear, including process nodes and many of the icons. See Setting application preferences — style sheets for details.
- **Sametime** lets you set up Sametime parameters if Sametime has been installed for your enterprise. See Setting Sametime preferences for details.

Object Browser

The Object Browser lists all the relationships for a specified object. For example, it can show all members of a Role, or membership of any person in roles, departments, or workgroups. See Browsing for information about business objects for details.

New Library

Displays an alternative view of the Business Object library (one view appears in the panel to the right of the process window). The Business Object library contains information from the Design Repertory database and the Organization Directory database, and the forms designed in the application database. You can click and drag these objects and drop them on appropriate places in your process diagram. See Using the Business Object library for details.

- Open multiple instances of the Business Object library by repeating Options - New Library. You can then select a different view of each library by clicking your choice in the box at the top.

  **Tip** Multiple instances of the library can be useful if you’re working with more than one type of object at the same time.

- Click the X to close a library display.
**Arrange Libraries**
Moves the Business Object library to the right of the process window. If there are two or more instances, Arrange Libraries tiles them.

**Search Library**
Opens a search dialog for extended searching of the Business Object library. See Searching the Business Object library for details.

**Show/Hide**
The items in this menu turn various features on and off.

- **Toolbar**
  Toggles the toolbar on and off. The toolbar provides convenient one-click access to various features.
  You may want to hide the toolbar to give yourself some extra screen space when you’re designing a complicated process. When the toolbar is visible, there’s a check mark next to its entry in the Options menu.

- **Status Bar**
  Toggles the status bar on and off at the bottom of the screen. The status bar tells you which tool you’ve chosen in the toolbox, which Design Repository database you’re using, the location of the cursor in the process window (in pixels X pixels), the date, and the time.
  You may want to hide the status bar to give yourself some extra screen space when you’re designing a complicated process. When the status bar is visible, there’s a check mark next to its entry in the Options menu.

- **Toolbox**
  Toggles the toolbox on and off.

- **Workspace**
  Toggles the Business Object library on and off.

- **Overview**
  Displays a small thumbnail of the process diagram. If the diagram is larger than the process window, a white box indicates the portion that is visible.
  Drag the white box with the mouse to change the part of the diagram that’s visible in the process window.

- **Page Breaks**
  Places a pair of dashed lines across the process diagram to indicate where pages will break when the diagram is printed. You can use this command in conjunction with the Zoom command to determine how a print of your process diagram will look.
Grid
Displays the Diagram Properties dialog box, with the Grid tab active. A grid can be useful in laying out a process diagram. It helps keep your drawing elements aligned. See Setting diagram properties — Grid for details.

Zoom In
Enlarges the process diagram by 10%.

Zoom Out
Shrinks the process diagram by 10%.

Zoom 100%
Returns the process diagram to its original scale.

Full Page
Shrinks or enlarges the process diagram so that it fits on a single printed page. The page size is determined by your printer settings. Note that for very large process diagrams, the labels may be rendered too small to read.

Zoom
Displays the Diagram Properties dialog box, with the Zoom tab active. See Setting diagram properties — Zoom for details

Align and Even Spacing
Adjust the alignment of the drawing elements. These features are available only when one or more drawing elements have been selected.

- To select elements, hold down the Shift key while clicking on them, or drag a box around them by pressing the left mouse button and moving the mouse. To deselect elements, hold down the Shift key and click them again. To deselect all elements, click once anywhere in the diagram.

  Note Sometimes an alignment will cause drawing elements to overlap or otherwise give results you don’t like. Click Edit - Undo to undo the alignment or even spacing.

Workspace
Sets the focus to the main Business Object library workspace.

Libraries
Selects from among libraries opened with the New Library command (Ctrl+L).
Setting application preferences — attributes
You can select which properties are displayed for each activity, routing relation, or other element in the process diagram. These properties may be displayed all the time, or as pop-ups when the mouse pointer passes over the element.

1. Select one of the diagram objects and then select each attribute you want to display.
2. Click Show Attributes in Diagram if you want the attributes to be visible.
3. Choose how you want the attributes to appear:
   • “Next to element” to have the attributes appear in the process diagram.
   • “Floating over element” to have the attributes appear in a box when you pause the mouse pointer over the element.
   
   Note The default for attributes is “Floating over element” with the most common choices turned on.

4. Repeat steps 1 through 3 for each diagram object.
5. Click OK when you’re finished.

Note If you choose “Next to element,” the properties you have selected will appear all the time in the process diagram. If you print the diagram, the properties will be printed along with the diagram. Using “Next to element” may cause the diagram to become very crowded or even unreadable, especially if you’ve chosen many properties to display.

Setting application preferences — language
If Lotus Workflow has been installed for more than one language, you can change the display language.

1. Select the language you want.
2. Click OK or another tab to continue setting preferences.

Setting application preferences — style sheets
Style sheets let you control the look of your process diagrams. Several are provided with Lotus Workflow, and you can also create your own.

Using an existing style sheet
1. Click the “…“ button to browse for the style sheet files.
2. Select a file and click Open.
3. A preview of the style sheet will display in the dialog box. If it’s the one you want, click OK.
Defining a new style sheet

1. Click the Define button

2. The Style Sheet Editor will display. If an existing style sheet is active, its elements will appear.

3. Click the Load button if you want to base your new style sheet on a different one. Select the style sheet you want and click Open to return to the Style Sheet Editor.

4. Click New if you want to start out with no graphics in the style sheet.

5. Select or create a graphic for each object. Click the “…” browsing button to search for other graphics. You can use any paint program to create new graphics.

   **Note** Each object except the background needs a graphic for each of four states: normal, selected, highlighted, and inactive. As you click each object on the left, a new set of graphics can be selected or created.

   **Tip** Look at the existing styles. They show clearly how the graphics change for each object and each state.

   **Tip** If you create or use graphics that aren’t already part of Lotus Workflow, the default sizes of the original bitmaps are approximately as follows (they vary depending on the style):
   
   Activities, automated activities, clusters, process links: 70 X 40 to 84 X 51 pixels
   
   Decision points: 107 X 60 to 111 X 63 pixels
   
   Start and End: 40 X 40 pixels to 50 X 44 pixels
   
   Small icons for toolbox: 16 X 16 pixels
   
   Background graphic: 70 X 70 to 127 X 127 pixels, preferably in a repeating pattern

6. Click Save to save your style sheet. You’ll be prompted for a name. Click Close to abandon your edits and return to Lotus Workflow Architect settings.
Setting application preferences — Sametime

From the Sametime tab of the Options - Applications preferences dialog box, follow these steps.

1. (Optional) To set the preference for logging onto Sametime automatically the next time you launch the Lotus Workflow Architect or Lotus Workflow Viewer, select the “Enable Sametime integration when application is launching” option.

   **Note** To make this preference work, you must select the “Automatically log me on” check box in the Log on to Sametime dialog box; see Connecting to Sametime.

2. Under Sametime community server, enter the host name of the Sametime community server, the port number, and the port number for application sharing.
   - The default port number is 1533 (Sametime’s well-known port).

3. Under Proxy type, select the appropriate proxy type option:
   - If your company doesn’t use a proxy server, select the No proxy option.
   - If your company uses an HTTPS Proxy, select HTTPS Proxy and, under Proxy server, enter the server name and port number of the proxy.
   - If your company uses an HTTP Proxy, select HTTP Proxy and, under Proxy server, enter the server name and port number of the proxy.

   **Note** For HTTP proxies, the default Sametime community server port number is 8082.
   - If your company uses a SOCKS proxy, see the instructions for configuring a SOCKS proxy.

4. Click OK.

For further background and details, see Setting Sametime preferences.

Browsing for information about business objects

**About the Object Browser**

You can use the Object Browser to browse through the Business Object library and get a synopsis of information about all the various business objects in the Business Object Library or other new libraries created on your system.

For example, you can select a particular activity in the Business Object library and find out the owner, the expanded owners, the readers, the non-readers, the team members, and the excluded team members for that activity. You can find out this type of information about any object in the Business Object library. The Object Browser is a tool for quickly getting this type of comprehensive business object information.
Using the Object Browser
When you are working in the Architect to get information on a business object, do the following steps.

1. Click Options and then Object Browser.
   The Object Browser dialog box appears. It is empty at this point.

2. Click the button in the upper-right corner of the dialog box.
   The Business Object library dialog box appears with a list of all the types of objects in the library.

3. Click the type of object you want information about; for example, if you want information about a particular activity, click the Activity object type.
   A list of all the objects of this type appears.

4. Double-click the specific object about which you want information.

5. Close the Business Object library dialog box to reveal the Object Browser dialog box.
   The specific object that you want information about appears in the drop-down box at the top of the Object Browser dialog box, and all the information about this object — for example, the owner, the expanded owners, the readers etc. — appears below.

   **Note**  The Objects you choose in the Object Browser will stay in the drop-down list until you exit and restart the Architect.

6. Click on any category of information listed to expand it to display further more specific information.

7. (Optional) To expand the information categories automatically, click Auto expand.
   This option displays only what’s actually in the object as opposed to all the information that could be in the object. For example, if an activity has only readers or an owner assigned to it, Auto expand lists only this information automatically expanded to show the particular readers and owner.

8. When you’re done, click OK.
Searching the Business Object library

You can search the Business Object library to create lists of business objects or organization units.

**Simple search**
Simply start typing when the focus is in the Business Object library and within a subcategory such as Roles or Persons. The “Starts with” dialog box opens immediately. Click OK or press Enter to begin searching for objects beginning with the letters you typed.

**Tip** You don’t have to type the entire name or word. Drag objects as needed into the process window.

**Extended search**
The Search Business Object Library dialog box appears when you select Search Library from the Options menu.

Follow these steps.

1. Select an Object type from the drop-down list.
2. Select a Search type from the drop-down list.
3. Enter your query in the box below. This may be a Notes @Formula or an LDAP query.
   
   • You can enter a Notes @Formula directly, or you can click the Formula button to use the Formula edit dialog box as a helper. See Searching with @Formulas for details and examples.
   
   • For LDAP queries, enter a formula, a start point in the LDAP tree, and a scope. See LDAP search details.
4. Click Search to begin the search.
   The results appear in the Search result box.
   
   • To add to the search results, change the information on the left and click Search again.
   
   • To clear the list and start over, click Clear.
5. Drag objects as needed into the process window.
6. Click Close to close the search dialog box.
Searching with @Formulas

You can search the Business Object library with @Formulas entered into the Search Business Object Library dialog box.

Any @Formula that evaluates to TRUE or FALSE can be used.

Examples
Search for person
Name = “Adams” returns all persons named “Adams.”
@Contains(LastNameOS; “Ada”) returns all persons whose names begin with “Ada.”

Search for an activity or process
CreatedTimeDate<@Date(2001; 5; 2) returns all activities created before the specified date.
@Contains(MainForm; “Sample”) returns all processes with a main document containing the form “Sample.”

Note @Formula searches are case-sensitive.

LDAP search details

Note When you’re connected to a Domino LDAP server, you have access to all the Notes fields (LastName, StreetAddress, etc.), but you must use the LDAP query language, not @Formulas.

Start point
The start point can be any DN (Distinguished Name) used as an ID for LDAP objects.

Scope
The scope includes base, one level of the tree, or an entire subtree.

Query attributes

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>objectclass</td>
<td>specifies the object type (e.g. ‘person’, ‘groupofuniquenames’)</td>
</tr>
<tr>
<td>cn</td>
<td>common name</td>
</tr>
<tr>
<td>dn</td>
<td>distinguished name</td>
</tr>
<tr>
<td>sn</td>
<td>last name (surname)</td>
</tr>
<tr>
<td>givenname</td>
<td>first name</td>
</tr>
<tr>
<td>mail</td>
<td>e-mail address</td>
</tr>
<tr>
<td>uniquemember</td>
<td>listing of members</td>
</tr>
<tr>
<td>uid</td>
<td>ID of a person (user id)</td>
</tr>
<tr>
<td>ou</td>
<td>organization unit</td>
</tr>
</tbody>
</table>
Examples
Search the whole directory or a subtree
Select an Object type (e.g., if you select Person you’ll get only persons).
Scope: subtree
Start at
Nothing specified: search the whole tree, starting at the root
Specify any distinguished name (DN): start search from there, e.g.
ou=People,o=lotus.com
Query
Nothing specified: find all persons.
Specify selection: find all instances, e.g. sn=Adams will return all
people with the last name “Adams.”

Search one entry
Scope: Base
Start at: Specify any DN that represents the object you’re looking for, e.g.
uid=JAdams,ou=people,o=lotus.com will return the person with the user ID
“Jadams.
Query: No additional query required.

Search on one level
Scope: One level
Start at: Specify any DN that represents the parent level, e.g.
ou=people,o=lotus.com.
Query
Nothing specified — gets all objects on the level below.
Criterion specified (see the table above): limits the search.

Multiple queries
You can use Boolean operators to combine or modify queries. Note that the
operator must appear before the items, not between them.
For example:
!(sn=Adams) returns people not surnamed “Adams.”
|(sn=Adams)(sn=Silver) returns people surnamed “Adams” or “Silver.”
&(sn=Adams)(givenname=James) returns “James Adams.”
|(!((sn=Adams)(sn=Silver))(!(sn=Luecking))) returns people surnamed
“Adams” or “Silver” but not “Luecking.”

Note LDAP searches are not case-sensitive.
Setting diagram properties — Grid

A grid can help you plan and lay out a process diagram.

Follow these steps.

1. Enter numbers to change the distance (in pixels) between grid marks.
   - X is the horizontal size.
   - Y is the vertical size.
2. Choose the grid properties.
   - Snap to grid makes the drawing objects align automatically on the grid lines.
   - Show grid makes the grid markers display on the process window background.
3. Click OK to accept your changes or Cancel to abandon your changes.

Setting diagram properties — Zoom

Follow these steps to set a zoom level other than the presets in the menu.

1. Choose on a specific zoom value or enter a zoom value in the box.
2. Click OK to accept your change or Cancel to abandon your change.

Tool menu

The tool menu displays three options for Sametime:

Connect to Sametime.

Disconnect from Sametime.

Show Participants of Current Process. This option displays the persons assigned as participants (activity owners, readers, team members, etc.) of the process displayed in the process panel.

Window menu

The Window menu helps you manage views of multiple processes. The Cascade command and the three Tile commands reduce the size of any process windows so that you can see at least a portion of each one. This can be useful if you need to compare process diagrams or if you want to copy elements from one diagram into another.

- Use the scroll bars or Options - Overview to change the part of the diagram that’s visible in its window.
- Click any visible part of a cascaded window to bring it to the top of the stack and make it the active window.
• Click any visible part of a tiled window to make it the active window.
  
  **Note** You can also use Ctrl+F6 to navigate among the windows.

• To copy an activity or other object between windows: Click the object to highlight it. Hold down the Ctrl key. Drag the object to the other window. You can’t drag routing relation arrows.

• Double-click the title bar or click the large box at the right of the title bar to enlarge a window so that it fills the entire work space.

  **Cascade**
  Reduces all process windows and stacks them so that their title bars are visible.

  **Tile**
  Shows all process windows in equal-size portions of the work space.

  **Tile Horizontally**
  Shows all process windows in equal-size horizontal strips.

  **Tile Vertically**
  Shows all process windows in equal-size vertical strips.

  **Close All**
  Closes all of the open process diagrams. If any has been edited and not saved, you’ll be prompted to save it.

  **Numbered process diagram titles**
  Each open process diagram is represented by a numbered entry. Click the entry or type the number to make a process diagram available for editing.

  **Help menu**
  The Help menu gives you access to help.

  **Contents**
  Displays the Contents page of the Help file.

  **Search**
  Displays the Search page of the Help file.

  **Help Database**
  Opens a Notes dialog box that allows you to select a different Help file.

  **About**
  Displays a title screen for the Lotus Workflow Architect giving the version number, build information, and copyright information. Click on the title graphic or press Escape to close the screen.
Using the toolbar

The toolbar provides one-click access to the features you will probably use the most. Consider them shortcuts for actions that would require two or more clicks in the menus.

When you pause the mouse cursor over an item in the user interface, a balloon appears telling you the function of the item.

- Create a new process.
- Open an existing process.
- Save the process currently displayed in the process window.
- Print the process currently displayed in the process window.
- Cut the selected items to the clipboard. This means that the items will be deleted from the process.
- Copy the selected items to the clipboard.
- Paste the contents of the clipboard into the current location.
- Undo the last action. If you can’t remember exactly what the last action was, click Edit - Undo instead.
- Redo the last action. This doesn’t repeat the last action; it undoes the last Undo.
- Create a cluster from the selected objects. Clusters can simplify the process diagram by gathering similar activities under one symbol. Clusters work best when they are used for collapsing adjacent nodes.
- Zoom in. This increases the size of the process diagram by about 10%.
- Zoom out. This decreases the size of the process diagram by about 10%.
- Open Business Object library. Each time you click this, you open a new instance of the Business Object library with a different portion of it displayed. Choose Options - Arrange Libraries in the menu to arrange the instances neatly at the right of the screen.
- Open the Organization Directory database.
- Open the application database.
- Tile the currently open process diagrams in separate windows.
Using the toolbox

The toolbox is a set of buttons that appear when you’re working on a new or existing process. They are the graphical tool you use to create a process diagram. When you click one of the buttons, the function of the mouse changes when the mouse cursor is in the process window. If you click the Activity button, for instance, and then move the mouse pointer into the process window, you can insert an activity simply by clicking the mouse button.

Toolbox help
Balloon help displays a brief explanation of each button as you pass the mouse cursor over it.

Toolbox location
You can place the toolbox at any edge of the screen or have it float. You can also hide it: Choose Options - Show/Hide - Toolbox in the menu.

Toolbox appearance
The items on the toolbox buttons look like they will in your process diagram. Their appearance can be customized; choose Preferences from the Options menu and click the Style Sheet tab.

Tool functions
Here is a brief description of each of the tools.

Standard cursor. This cursor looks like the standard Windows cursor. Use this cursor to select, move, and modify process design elements. For details, see Mouse shortcuts.

Straight connector. This cursor looks like a straight black line with an arrow head in the middle. Click and drag this cursor between drawing elements like activities, process links, automated activities, clusters, and start and end nodes. For details, see Using connectors.

- You must click first inside one design element, then drag, and then release the mouse button inside the destination design element. The drawing elements are then connected by a straight line.
- Right-click on the background to revert to the standard cursor.

Angled connector. This cursor looks like a crooked black line with an arrow head at one end. Use it just like the straight connector. The angled connector can enter and exit an activity or other drawing element from the top, bottom, or either side. For details, see Using connectors.
Activity. This cursor places an activity box on the process diagram. Position the cursor and click once to insert an activity box. Note the following shortcuts:

- Reposition the cursor and click again to insert another activity.
- Click on the background, hold the mouse button down, and drag to insert an activity and position it in one operation.
- Click on an existing activity and drag to insert a new activity, position it, and create a connector between them at the same time. The last connector you used will be inserted.
- Right-click on the background to revert to the standard cursor.

Process Link. This cursor inserts a process link on the process diagram. Process links connect your process to a subprocess. You can use the same shortcuts as for the Activity button.

Cluster. This will create a cluster box on the process diagram. To add activities to this cluster, double-click the box to open the cluster process window.

Automated Activity. This cursor inserts an automated activity on the process diagram. Automated activities are performed automatically without user interaction, such as sending mail or running a Lotus Notes agent. You can use the same shortcuts as for the Activity button.

Decision Point. This cursor inserts a Decision Point on the process diagram. For more information on Decision Points see About decision points.

Start Node. Use this cursor to indicate the starting place for the process. Position the mouse cursor and click once.

- The start node isn’t required if the first activity is obvious, but its use can help maintain consistency among your process diagrams.
- A process diagram may have only one start node and one connector exiting from it.

End Node. Use this cursor to indicate the ending place for the process. Position the mouse cursor and click once.

- The end node isn’t required if the last activity is obvious, but its use can help maintain consistency among your process diagrams.
- A process may have more than one end node to show multiple endings, alternative endings, or exits from the process. However, if a process will be reused as a subprocess in another process, it may have only one end node.
Cluster. This cursor places a cluster on the process diagram. A cluster is used to contain several related activities. You can use the same shortcuts as for the Activity button.

- To add activities and other elements to a cluster, double-click on it. This will open a new window with an empty activity in it. Use the tools to create linked activities on this new screen. When you’re done, choose File - Close in the menu to return to the main process.
- You can create clusters within clusters.

Tip You can create clusters from existing activities by selecting them and choosing Process - Cluster Selected Objects from the menu.

Text Box. This cursor inserts a text box on the process diagram. Position the cursor and click once. Right-click to revert to the standard cursor.

- Double-click on the text box to open it in edit mode so you can type in it.
- Right-click on the text box to display a dialog box to select font, style, and size of text.
- In edit mode, you can select text and cut, copy, delete, or paste text. You can use the Edit menu, right-click on the text for a pop-up menu, or use standard keyboard shortcuts.

Mouse shortcuts
When you’re working in the process window, you can use the mouse to select and modify drawing elements.

Right-click
Displays a pop-up menu or properties dialog box for any object or the process window background.

Left-click
Selects an object. If any other objects were selected, they will be deselected. If an object is already selected, clicking on it again (this isn’t the same as double-clicking) will open it for editing. For drawing elements, you can enter or change the activity name. For text boxes, you can enter or edit text.

Shift + left-click
Selects or deselects an object without deselecting any other selected objects.

Left double-click
Opens a cluster or process link in a new window. For other drawing objects, opens a properties dialog box.
For text boxes, opens the text box for editing.
Click and drag
On the background, drags a dashed-line box around objects and selects all of them. Previously selected objects, if any, are deselected.

On a selected object or one object in a selected group, moves the object or group to where you drag it.

Shift + click and drag
On the background, drags a dashed-line box around objects and selects them without deselecting other selected objects.

Using connectors
You have two options for creating the connectors that link one process node to another in a process diagram: straight and angled. Each does exactly the same thing: it creates a routing relation between the process nodes. The routing relation can be assigned properties such as conditional routing, etc.

The choice of connectors can determine how easy your process diagram is to read and maintain. Straight connectors probably make sense for simple processes; as your processes become more complex, you may have difficulty keeping connectors from overlapping activities to which they don’t belong. The angled connectors provide much more design flexibility.

Follow these instructions for using and modifying connectors.

Choosing connectors
The last type of connector you choose from the tool box is the default connector. To change to a different type of connector, click the appropriate tool.

If you’re using a click-and-drag technique to draw process steps and connectors at the same time, click the connector tool you want and then click the activity, automated activity, cluster, or process link tool you want.

Placing new angled connectors
Connectors can exit or enter any side of a process step rectangle. When you use angled connectors to connect existing process steps, the mouse cursor changes to indicate the side to which the connector will be attached.

From the starting rectangle, before the mouse has been clicked:

- If the cursor is near the center of the rectangle, it has four arrows. If you click and drag, the connector will exit from the side the cursor is on.
- If the cursor is near the edge of the rectangle, it has a single arrow that points to that edge. If you click and drag, the cursor will exit that edge and be anchored to the edge no matter where you move the mouse pointer.
After the mouse has been clicked, and the pointer passes over a rectangle, but before the mouse button is released:

- If the cursor is near the center of the rectangle, it has four arrows. If you release the mouse button, the connector will enter from the side closest to the plane of the starting rectangle.
- If the cursor is near the edge of the rectangle, it has a single arrow that points to that edge. If you release the mouse button, the connector will enter that side and be anchored to the edge even if you later move the rectangle around in the diagram.

**Note**  When you click and drag activities or other rectangles, the angled connectors exit and enter from the edge that’s in the direction of the drag.

**Modifying existing connectors**
Once you have placed connectors on your process diagram, you can modify their type, direction, and placement.

- To modify the type of connector or to reverse its direction, click the standard cursor tool. Then right-click anywhere on the connector. A pop-up menu will appear. Choose Straight or Angled to change the type. Choose Turn Around to reverse the direction of the arrow.
- To modify the location of the connector, click the standard cursor tool. Then left-click anywhere on the connector. Small boxes will appear on the connector. Click and drag the box to move the connector to a different edge of the same process step, or to a different process step.

**Assigning properties**

The drawing elements you use in a process diagram, and the process itself, must have properties assigned to them. In order for the Workflow Engine to be able to route work assignments from one participant to another, and to keep track of who’s responsible at each step in a job, the process designer must assign job owners, activity owners, task lists, teams, deadlines, and so on. The Architect provides the tools for this.

See the following topics for step-by-step instructions on assigning properties.

Assigning properties to the process
Assigning properties to activities
Assigning properties to automated activities
Assigning properties to process links
Assigning properties to routing relations
Assigning work to people and groups
One of the most powerful features of Lotus Workflow is the ability to assign people or groups of people to various aspects of a process: job owners, activity owners, team members, and readers. Instructions for making these assignments appear within the relevant topics as needed. For a stand-alone version of these instructions, see Selecting people and groups.

Using Sametime
If Sametime has been installed and activated in your Workflow environment, you can use it to chat with anyone who is listed in a Workflow directory. Sametime can be useful to verify someone’s availability, to get expert information, and so on. See About Sametime and its links, particularly Starting a Sametime chat.

Selecting people and groups
Follow these steps to select or exclude people and groups to work on or supervise jobs and activities.

1. Click the Select button for the Include list. A dialog box with a selection list appears.
2. In the drop-down menu, select the type of owner you want to include (Workgroup, Department, Role, etc.).
   
   Note  The Person view will be listed only if the Organization Directory has been set up to include a Person view.

3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.

4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.

5. If you want to start over, click Clear to empty the list.

6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Include or Exclude box.

   Note  We recommend that you select or exclude people according to the groups they belong to, such as a workgroups or roles, or according to job property or formula, rather than individual persons. This avoids having to redesign a process if a person’s responsibilities change or if a person joins or leaves the organization. Such personnel changes are tracked more easily in the Organization Directory database or other database containing person records used in Lotus Workflow.
Note If Sametime is installed and activated in your Workflow environment, you can initiate a chat with people in the lists. See About Sametime in Lotus Workflow and its links, particularly Starting a Sametime chat.

Assigning properties to the process

After you’ve created the process diagram for a new process, you can assign properties to the process and its activities.

The process must have at least three properties: a process name, a job owner, and a main document form.

Process properties are set in two properties dialog boxes: Basic Process Properties and Advanced Process Properties.

Follow these steps to open a properties dialog box.

1. Click Process in the menu.
2. Choose Basic Properties or Advanced Properties. The property settings display as tabbed pages in the dialog box.
3. Click the tab for the property you want to set.

Tip Another way to open a properties dialog box is to right-click the background of the process and choose the properties box from the pop-up menu.

Basic Properties

See the following topics to find out how to set each basic process property.

Naming the process
Selecting a job owner
Assigning initiators to the process
Selecting forms at the process level
Setting the timing for a job
Verifying the version number of a process
Writing a description of a process

Advanced Properties

See the following topics to find out how to set each advanced process property.

Enabling the audit trail
Enabling archiving for a job
Defining routing settings in a process
Assigning join settings at the process level
Selecting process readers
Creating custom attributes

**Naming the process**
Every process must have a name.
Follow these steps.
1. Open the basic properties dialog box if it isn’t already open.
2. Type a name for your process in the Name box.
3. Click OK to close the dialog box or a tab to assign properties. If the name you entered is already in use when you click OK, you’ll be prompted to overwrite the old process or enter a new name.

**Selecting a job owner**
At least one job owner must be specified for each process. Job owners are the people in your organization who have overall responsibility for the completion of jobs. They may monitor the progress of the activities, receive e-mail notification if a job or activity is late, and intervene in an activity to make sure it’s completed correctly and on time.

*Note* We recommend that you select or exclude job owners according to the groups they belong to, such as a workgroups or roles, or according to job property or formula, rather than individual persons. This avoids having to redesign a process if a person’s responsibilities change or if a person joins or leaves the organization. Such personnel changes are tracked more easily in the Organization Directory database or other database containing person records used in Lotus Workflow.

**Selecting**
Job owners in your organization may include supervisors and managers, for instance, or they may be those with certain technical expertise to assist the activity participants in their work.

Follow these steps to select one or more job owners.
1. Open the basic properties dialog box if it isn’t already open, and click the Owner tab.
   A box labeled Job owner will display, with two list boxes labeled Include and Exclude.
2. Click the Select button for the Include list. A dialog box with a selection list appears.
3. In the drop-down menu, select the type of owner you want to include (Workgroup, Department, Role, etc.).

4. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.

5. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.

6. If you want to start over, click Clear to empty the list.

7. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Include box.

**Excluding**

You can select a subset of a group to be excluded from job ownership. For example, if you select Marketing Department as job owners, you can exclude persons with the job property “job initiator” from job ownership.

Follow these steps to exclude organization units from job ownership.

1. Click the Select button for the Exclude list.
   A dialog box with a selection list appears.

2. In the drop-down menu, select the type of owner you want to exclude (Workgroup, Department, Role, etc.).

3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.

4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.

5. If you want to start over, click Clear to empty the list.

6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Exclude box.

When you’ve finished, either click OK to close the Basic Process Properties dialog box or click another tab to assign further properties.
Assigning initiators to the process

Initiators are those individuals or groups who may start a job based on a process in Lotus Workflow. Usually the initiator is anyone who has been assigned to be an activity owner of the first activity in the process.

Follow these steps.

1. Open the basic properties dialog box if it isn’t already open, and click the Initiators tab.
2. Select one of the options:
   - **All.** Everyone in your organization who has access to the application database in which jobs based on this process will be worked on.
   - **Potential activity owner of the first activity.** Persons or groups assigned as potential activity owners of the first activity.
3. Click OK to close the dialog box or another tab to assign further properties.

Selecting forms at the process level

Forms determine the content, design, and automation features of the documents used in Lotus Workflow. They’re usually developed by the application developer using Domino Designer.

- Every process must have a default form for the main document of the binder. The main document is the one that workflow participants work on. The form of the main document may change in the properties for each subsequent activity, depending on the needs of your design.
- Additional forms may be assigned at the process level for new documents that can be added to the binder during a job. As with the main document, the forms for new documents can also be specified in the properties for each activity. Usually, however, it’s best to specify a default set of forms in the process properties.

See Selecting forms at the activity level.

Follow these steps to select forms.

1. Open the basic properties dialog box if it isn’t already open, and click the Forms tab.
2. For the main document:
   - Open the drop-down menu in the Main document box.
   - Select one form to be used as the default main document.
3. For new documents:
   - Click Selected under New documents and then select one or more forms. Those forms will be listed when a workflow participant selects a binder and clicks the Add Document button in the application database.
     
     **Tip** To select more than one form, hold down the Ctrl key as you click.

4. Click OK to close the dialog box or another tab to assign further properties.

**Note** It’s possible to use one application database during process design and a different one in your organization’s operational environment. If that’s the case, make sure the forms you specify are available in both application databases.

### Setting the timing for a job

Timing is an optional process property. Use the timing settings to establish deadlines for jobs. The deadline is established by the amount of time that has passed since a job was initiated. You also have the option of notifying the job owner if a job is overdue. Deadlines may appear in the main document or in an information box when the workflow participant clicks a button to show details of a job or activity.

### Setting the job duration

Follow these steps.

1. Open the basic properties dialog box if it isn’t already open, and click the Timing tab.

2. Click Process duration.

3. Select the number of days or other time units that it should take to complete a job.

4. Select a time unit from the drop-down menu. The duration can be entered in minutes, hours, days, weeks, months or years, either as 24-hour time or according to your organization’s hours of operation (work days, etc.). The work times for your organization are set in the calendar of the Organization Directory database.
Notifying the job owner
Follow these steps.

1. If you want Lotus Workflow to notify the job owner when a job is overdue, click Overdue process.

2. Select the timing for the first notification, along with a time unit. Leave the number at zero if you want to notify the job owner at the deadline. Use a negative number if you want to notify the job owner before the deadline. Use a positive number if you want to notify the job owner after the deadline.

   Caution Don’t set notification for earlier than the overall duration.

3. Select a time between repeated reminders, along with a time unit. Zero means that no reminders will be sent.

   Note Regardless of your setting, mail can be sent only in half-hour or longer intervals.

   Tip To notify the job owner as soon as a job has been completed, design the process to end with an automated activity that sends e-mail to the job owner.

When you’ve finished entering the deadline and notification settings, click OK to close the dialog box or another tab to assign further properties.

Verifying the version number of a process
As processes are edited and updated, it’s possible to create multiple versions of the same process. It may be important later on to find version information of the process you’re editing.

Follow these steps.

1. Open the basic properties dialog box if it isn’t already open, and click the Version tab.

2. A tab will display giving the version number, the name of the person who created the process, the creation date the name of the person who updated the process, and the date of the update. There may also be a description of the changes that were made.

3. Click OK to close the dialog box or another tab to assign further properties.
Writing a description of a process

The Description tab in Basic Process Properties allows you to give essential information about a process. This can be important for application databases in which a user can choose from several processes to initiate a job. The description appears in the New Job dialog box in the application database.

Follow these steps.

1. Open the basic properties dialog box if it isn’t already open, and click the Description tab.
2. Click in the text box and type in a brief description of the process. You might include its goals, end product, who the participants are going to be, and any other detail that will distinguish this process from the others.
3. Click OK to close the dialog box or another tab to assign further properties.

Enabling the audit trail

The audit trail records actions that occur at the job or activity level, such as who claimed an activity, who received work reassignments, and the time and date work was completed. By analyzing the audit trail, you can discover bottlenecks and unused sections of a process. This knowledge can lead to more productive and efficient planning. You can also use the audit trail to create permanent records about jobs running in your organization.

Follow these steps.

1. Open the advanced properties dialog box if it isn’t already open, and click the Audit trail tab.
2. Click Enable audit trail recording.
3. Select the degree of tracking that will be used. For critical processes or to satisfy government regulations, you may wish to track 100% of the jobs that are run under this process. For other processes it may be sufficient to track only a sample of the jobs. The degree can be adjusted in 10% increments.
4. Indicate where to store the audit trail.
   • For speed, click Application database. Audit trail records will be stored there.
   • For ease in viewing and analyzing the data, click Audit trail database and choose a database. This database must be created as a mail-in Notes database; see the Installation and Administration Guide for details.
5. Choose one or more types of audit trail content to track in addition to the process, job, and activity names and the names of the workflow participants:

- **Activity-specific information:** The time and date that the job was initiated and completed, and the time and date each activity was initiated and completed.

- **Job-specific information:** The time and date that the job was initiated and completed.

- **Exception-handling information:** The time and date that the job was initiated and completed, the date the activity was completed, and all information related to reassignments, suspending, postponing, canceling and reactivating within a job.

6. Click OK to close the dialog box or another tab to assign further properties.

**Enabling archiving for a job**

Documents created and edited throughout the course of a job can be archived once the job is completed. If no archive settings are entered in the process definition, documents are stored in the application database and can be viewed in the Completed Jobs view.

The advantages of archiving are:

- You can select which documents to retain and which documents to delete after a job is completed.

- The archived documents are removed from the Completed Jobs view after a set period of time.

You may need the assistance of a Lotus Workflow administrator in setting up archiving:

- Documents may be archived within the application database or in a separate database. If a separate database is used, it must be created from the Archive database template provided with Lotus Workflow.

- Archiving must also be scheduled in the Application Setup document.

Your Lotus Workflow administrators may have already taken care of these tasks. Detailed procedures for creating the database and creating the Application Setup document are in the Lotus Workflow Installation and Administration Guide.
Entering the archiving settings

Follow these steps.

1. Open the advanced properties dialog box if it isn’t already open, and click the Archive tab.

2. Click Enable document archiving to place a check in the box and enable archiving.

3. Click the arrows to the right of this line to select the number of days after job completion when archiving will take place.

4. If an archive database has been set up, select it from the Archive database list. The default is to retain the archives in the application database.

5. For Move documents, enter a document selection formula to determine which documents will be archived. Click the Formula button to go to the Formula edit dialog for assistance in writing this formula.

See Writing and testing formulas for details.

6. For Delete documents, enter a document selection formula to determine which documents will be deleted from the application database. Only those documents which have not been moved to the archive will be deleted.

   • For example, if the formula is @all, then all documents not moved will be deleted.

See Writing and testing formulas for details.

7. If the audit trail has been enabled, define where audit trail documents are to be archived. Click the arrow on the entry box labeled Audit trail archiving and select one of the following options:

   • Keep in application database. This is the default. Audit trail documents can be viewed under View - Administration - Audit trail. Use this setting if you don’t want the audit trail documents to be affected by the archive procedure.

   • Move to archive database. This option moves audit trail documents to the same database as the archived documents.

   • Delete. This option deletes all audit trail documents. Use this setting if you want to delete all remaining audit trail documents. The setting is useful, for example, to finally delete secure or backup copies of audit trail documents already sent to an Audit Trail database.
Defining routing settings in a process

All routing of binders from activity to activity is done according to the setting at the process level. Two kinds of routing are possible in Lotus Workflow: immediate and scheduled.

**Immediate.** Routing is initiated by the activity owner immediately upon executing the Save and Complete command, and the core routing procedure takes place on the activity owner’s local (client) computer. If the activity is incomplete (a task not checked off or a manual routing option not selected, for instance), the activity owner is notified. Routing problems are also reported to the activity owner. The activity owner can try to solve the routing problem or forward the problem to another responsible person.

**Scheduled.** Routing is initiated by the server at scheduled intervals, and the core routing procedure takes place on the server. When the activity owner completes the activity and clicks the Save & Complete button, the binder is held (with the status “Ready to route”) until the scheduled agent executes. If the activity is incomplete (a task not checked off or a manual routing option not selected, for instance), the activity owner is notified. Routing problems are reported to the job owner.

**Note** In the last activity before a subprocess, scheduled routing always takes place regardless of the settings.

The routing strategy can be modified at the activity level. Also, the activity owner can override scheduled routing, as detailed below.

**Defining routing at the process level**

Follow these steps to define routing settings at the process level.

1. Open the advanced properties dialog box if it isn’t already open, and click the Routing tab.
2. Select one of the following:
   - Immediate (client-based) routing
   - Scheduled (server-based) routing
3. Click OK to close the dialog box or another tab to assign further properties.

**Overriding a routing setting**

There are two ways to override a routing definition that was set at the process level:

- You can change the routing definition at the activity level. There is an Advanced Activity Properties dialog box similar to the Advanced Process Properties dialog box.
The activity owner can execute immediate routing in an activity with scheduled routing.

Assigning join settings at the process level

As part of your process design, you may cause a binder to be copied and sent to multiple activities in a parallel path. For example, a job may require that managers from two departments approve a document.

In each activity, the documents in the binder, including the main document, may be modified in the course of completing the activity’s tasks.

When the copies arrive at a single subsequent activity, they must be joined so that there is one main document. Other versions of the documents may be discarded or retained in the binder.

Join settings control how binders that have followed parallel routing paths are merged together in a subsequent activity. Two options are available:

- Keep all versions of a document and keep only the updated versions of a document.
- Keep only updated versions. All updated versions of a document are retained and will be included in the joined binder. The original document is discarded unless it hasn’t changed in any of the parallel activities to which it was routed.

Note At the activity level, the join settings include an option to select the main document coming from a particular activity. If that option is selected and the main document wasn’t changed in that activity, an error message will appear at runtime. See Assigning join settings at the activity or process link level for details.

Assigning join settings at the process level

Follow these steps to assign join settings at the process level.

1. Open the advanced properties dialog box if it isn’t already open, and click the Join Setting tab.
2. Click one of the following:
   - Keep all versions of a document
   - Keep only updated versions of a document
3. Click OK to close the dialog box or another tab to assign further properties.
Overriding a join setting
In the Advanced Activity Properties dialog box, there are two ways to override a join setting that was assigned at the process level:

- You can change the join setting for a particular activity and designate an additional strategy for selecting which copy of the main document will become the main document for the activity.
- You can disable joins at the activity level. You’d do this, for instance, if a preceding activity can branch to two or more other activities but to only one of the activities during the course of a job. The process design, of course, must show all possible routes that converge on the subsequent activity. By disabling joins at that subsequent activity, you speed up the processing of the job.

Selecting process readers
Readers can be selected at the process and activity level. Selecting readers at the process level is useful to provide read access to all documents in each step of a process for people who are not directly involved in the job. Workflo participants with reader access can find all documents they have access to in the “For Your Interest” view in the application database.

Choosing All readers vs. Selected readers
First decide whether you want to restrict readers of the documents in the process.

Follow these steps:

1. Open the advanced properties dialog box if it isn’t already open, and click the Readers tab. Find the box labeled Process readers.

2. Do one of the following to indicate who should be allowed to read binder documents:
   - Click All under Process readers if you want everyone who has the role [Process Reader] in the Access Control List of the application database to be allowed to read binder documents.
     Click OK to close the Advanced Process Properties dialog box or click another tab to assign further properties.
   - Click Selected under Process readers if you want to define who should be able to read binder documents.
     Continue below.
Note  We recommend that you select or exclude readers according to the
groups they belong to, such as workgroups or roles, or according to job
property or formula, rather than individual persons. This avoids having to
redesign a process if a person’s responsibilities change or if a person joins or
leaves the organization. Such personnel changes are tracked more easily in
the Organization Directory database.

Selecting readers
Caution  Select process readers carefully, because they can’t be excluded
from reader access in individual activity steps. If the material in some steps
is sensitive, you can select restricted readers here at the process level and
then add more readers as needed at the activity level.

Follow these steps to select one or more readers.

1. Click the Select button under Add readers. A dialog box with a
   selection list appears.

2. In the drop-down menu, select the type of owner you want to include
   (Workgroup, Department, Role, etc.).

3. Select the name or names you want and click Add. (Hold down the
   Ctrl key to make multiple selections.) Your selections appear in the
   Selection list.

4. If you change your mind or make a mistake, highlight the entry in the
   Selection list and click Remove.

5. If you want to start over, click Clear to empty the list.

6. When you’re satisfied with your selections, click OK. The Properties
dialog box will reappear, and the organization units you selected will
be listed in the Add readers box.

7. Continue below if you want to exclude anyone from reader access.
   Click OK or another tab if you don’t want to exclude anyone.

Excluding
You can select a subset of a group to be excluded from the readers. For
example, if you select Marketing Department as readers, you can exclude
those with the role Assistant so that only supervisors in the Marketing
Department have reader access.

Follow these steps to exclude organization units from reader access.

1. Click the Select button for the Exclude list. A dialog box with a selection
   list appears.

2. In the drop-down menu, select the type of reader you want to exclude
   (Workgroup, Department, Role, etc.).
3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.

4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.

5. If you want to start over, click Clear to empty the list.

6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Exclude box.

7. When you’ve finished, either click OK to close the Advanced Process Properties dialog box or click another tab to assign further properties.

Assigning properties to Start and End nodes
The Start and End nodes in a process diagram usually don’t need to be further labeled. You may, however, change their names and provide descriptions.

Follow these steps.
1. Open the properties dialog box if you haven’t already:
   Right-click on the node and choose Properties from the menu.
2. Enter a name in the Name box. These nodes are small; you won’t be able to fit more than one or two words.
3. Write a description. You may want to tell where the job originated, what the next job is, and so on.
4. Click OK to accept your changes or Cancel to abandon your changes.

Assigning properties to activities
Each activity in a process must have properties assigned to it in order for the process to work. You may want to assign all or most of the properties as you create each activity, lay out the entire process before making the assignments, or devise some other approach to the task. It’s probably a good idea at least to name the activities as you create them, in order to keep track of them.

Note  If you’re using an existing process as the basis for a new process, be aware that the properties of the old activities may not be suitable for the new ones.

Each activity must have at least two properties: an activity name and one or more activity owners.

Activity properties are set in two properties dialog boxes: Basic Activity Properties and Advanced Activity Properties.
Follow these steps to open an activity properties dialog box.

2. Choose Basic Properties or Advanced Properties. The property settings display as tabbed pages in the dialog box.
3. Click the tab for the property you want to set.

**Basic Properties**
See the following topics to find out how to set each basic process property.

- Naming an activity
- Selecting potential activity owners
- Creating a task list
- Specifying a decision
- Selecting forms at the activity level
- Setting the timing for an activity
- Writing a description of an activity

**Advanced Properties**
See the following topics to find out how to set each advanced process property.

- Setting reassignment properties for an activity
- Defining a team to work on an activity
- Selecting activity readers
- Defining routing settings for an activity
- Assigning join settings at the activity or process link level
- Creating custom attributes

**Naming an activity**

Every activity must have a name.

Follow these steps.

1. Open the basic properties dialog box if it isn’t already open.
2. Type a name for the activity in the Name box.
3. Click OK to close the dialog box or a tab to assign properties.

**Tip** It’s a good idea to keep your activity names short. Typically, the graphic for the activity displays a maximum of three lines of about 8 to 10...
characters each. Text beyond three lines is saved, but it won’t display in the process diagram.

**Tip** If you can, try to make activity names unique. For large organizations with many processes, this may of course be impossible.

**Selecting potential activity owners**

At least one potential activity owner must be specified for each activity. Activity owners are the people in your organization who are assigned to complete each step of a job. They may modify, add, or delete documents; get help from a team of co-workers; review and approve the work from previous activities; make decisions about how a binder will be routed, and so on.

**Note** We recommend that you select or exclude activity owners according to the groups they belong to, such as a workgroups or roles, or according to job property or formula, rather than individual persons. This avoids having to redesign a process if a person’s responsibilities change or if a person joins or leaves the organization. Such personnel changes are tracked more easily in the Organization Directory database.

**Caution** Don’t assign empty organization units as potential activity owners. Even if there are other valid individuals or groups assigned to the activity, the presence of an empty organization unit will cause a routing error.

**Selecting**

Activity owners in your organization should be those who have the knowledge, authority, or responsibility to complete an activity.

Follow these steps to select one or more activity owners.

1. Open the basic properties dialog box if it isn’t already open, and click the Owner tab.
2. Click the Select button for the Include list. A dialog box with a selection list appears.
3. In the drop-down menu, select the type of owner you want to include (Workgroup, Department, Role, etc.).
4. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.
5. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.
6. If you want to start over, click Clear to empty the list.
7. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Include box.

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Excluding
You can select a subset of a group to be excluded from activity ownership. For example, if you select Marketing Department as job owners, you can exclude persons with the job property “job initiator” from activity ownership.

Follow these steps to exclude organization units from activity ownership.

1. Click the Select button for the Exclude list. A dialog box with a selection list appears.
2. In the drop-down menu, select the type of owner you want to exclude (Workgroup, Department, Role, etc.).
3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.
4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.
5. If you want to start over, click Clear to empty the list.
6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Exclude box.

Notification
On the left is a box labeled Notification. Click Also notify… if you want all potential activity owners of this activity to be notified by e-mail if the binder for this activity is routed to them.

Note  If this activity is likely to be used very frequently (several times a day, perhaps), you probably don’t want to notify the potential activity owners. Such notification not only creates a certain amount of e-mail traffic on your servers, it may be disruptive or annoying to the potential activity owners. If the activity owners expect work assignments to appear in their activity lists, they can be instructed to check periodically for new assignments.

When you’ve finished, either click OK to close the Basic Activity Properties dialog box or click another tab to assign further properties.
Creating a task list

A task is a smaller work unit within an activity. Although task lists are optional, you may find it useful to break down an activity into smaller units. The same activity owner is responsible for all tasks. There’s room to list up to seven distinct tasks in the properties for an activity.

You can also specify resources necessary to complete a task. These include forms available in the application database and client-driven programs that have been defined in the Organization Directory database. A client-driven resource, for example, might be a word processing program or a spreadsheet.

The tasks may appear in the main document or in an information box when the workflow participant clicks a button to show details (depending on the application design).

If you designate one or more tasks as required, the activity owner must check off those tasks as completed before closing and saving the activity; otherwise an error message will be displayed reminding the activity owner to complete the task(s).

One special task in an activity is making a decision. This is covered separately in the topic Specifying a decision.

Listing the tasks

Follow these steps to create a task list.

1. Open the basic properties dialog box if it isn’t already open, and click the Tasks tab.
2. Click the Task list button
3. Enter up to seven tasks. Make sure each task is worded differently, so Lotus Notes can distinguish among them. Don’t skip lines. You can enter a description that’s longer than the box (the text will scroll), but in general it’s a good idea to keep the task descriptions short.
4. If a task is required to complete the activity, click the Required box next to the task name.

Specifying resources

Follow these steps to specify resources.

1. Click the Advanced button. The task list will divide into task names and resources.
2. Click the browse button (…) next to a place where you want to specify a resource. The Business Object library will display showing the available forms.
3. Choose Form or Client-driven program from the drop-down list.
4. Double-click the name of the form or client-driven program you want. It will appear in the Resource list.

5. Close the dialog box.

When you’re done, click OK to close the Basic Activity Properties dialog box or another tab to assign further properties.

**Specifying a decision**

Decisions are often a part of workflow. Lotus Workflow allows you to integrate decisions into process design easily, without requiring complex programming. Decisions made by workflow participants can determine who works on the documents next, which department receives the next assignment, or even which automated activity is launched.

The decision may appear in the main document or in an information box when the workflow participant clicks a button to show details (depending on the application design).

The workflow participant must choose one of the alternatives before saving and closing the activity; otherwise an error message will be displayed reminding the activity owner to make a decision.

Building a decision into a process involves two basic steps: specifying the decision in an activity and then assigning conditions in the routing relations flowing from the activity. This topic covers specifying the decision in the activity.

To specify a decision, follow these steps.

1. Open the basic properties dialog box if it isn’t already open, and click the Decision tab.

2. The tab changes to display two areas: Decision description and Decision choices.

3. Enter a brief description in Decision description.

4. List the available choices in Decision choices. Enter only one choice per line.

   **Caution** Don’t use any special characters such as . , ; + # “ ” or ~ in the decision choices. Also, make sure each decision has a clear and unique name.

5. Click OK to close the Basic Activity Properties dialog box or another tab to assign further properties.
Selecting forms at the activity level

Forms determine the content, design, and automation features of the documents used in Lotus Workflow. They’re usually developed by the application developer using Domino Designer.

- Every process must have a default form for the main document of the binder. This form is selected at the process level. See Selecting forms at the process level.

- Additional forms may be assigned at the process level for new documents that can be added to the binder during a job. As with the main document, a set of forms for new documents can be specified in the process properties.

At the activity level, you can change the main document form and specify forms for new documents that can be added in the activity.

Follow these steps to select forms for an activity.

1. Open the basic properties dialog box if it isn’t already open, and click the Forms tab.

2. For the main document:
   - Click Unchanged if you want this activity to use the same form as in the preceding activity.
   - Click Change to if you want to change the form of the main document. Then select a document form from the drop-down list.

3. For any new documents that the activity owner can add:
   - Click None to disable the creation of new binder documents in this activity.
   - Click All allowed in process to allow the activity owner to add any form specified at the process level.
   - Click Selected to select one or more forms from the list.

   Tip  To select more than one form, hold down the Ctrl key as you click.

4. Click OK to close the dialog box or another tab to assign further properties.

Note  It’s possible to use one application database during process design and a different one in your organization’s operational environment. If that’s the case, make sure the forms you specify are available in both application databases.
Setting the timing for an activity

Use the timing settings to establish deadlines for activities. You can set two deadlines:

- Completion of the activity, based on the amount of time that has passed since it was claimed.
- Claiming of the activity, based on the amount of time that has passed since it arrived in potential activity owners’ activity lists.

You also have the option of notifying activity owners and job owners when an activity is late or hasn’t been claimed on time. Deadlines may appear in the main document or in an information box when the workflow participant clicks a button to show details of a job or activity.

Setting activity duration

Follow these steps.

1. Open the basic properties dialog box if it isn’t already open, and click the Timing tab.
2. Click Activity duration.
3. Select the number of days or other time units that it should take to complete the activity.
4. Select a time unit from the drop-down menu. The duration can be entered in minutes, hours, days, weeks, months or years, either as 24-hour time or according to your organization’s hours of operation (work days, etc.). The work times for your organization are set in the calendar of the Organization Directory database.

Setting notification for an overdue activity

The first notification goes to the activity owner; subsequent notifications, if set, go to both the activity owner and the job owner.

Follow these steps.

1. Click Overdue activity.
2. Select the timing for the first notification, along with a time unit. Leave the number at zero if you want to notify the activity owner at the deadline. Use a negative number if you want to notify the activity owner before the deadline. Use a positive number if you want to notify the activity owner after the deadline.
   
   **Note** If you use a negative time, don’t set notification for earlier than the overall duration.
3. Select a time between repeated reminders (to be sent to both the activity owner and the job owner), along with a time unit. Zero means that no reminders will be sent.
**Note** Regardless of your setting, mail can be sent only in half-hour or longer intervals.

**Setting notification for an unclaimed activity**
The first notification goes to all potential activity owners; subsequent notifications, if set, go to both the potential activity owners and the job owner.

Follow these steps.
1. Click Unclaimed activity.
2. Select the timing for the first notification, along with a time unit. Leave the number at zero if you want to notify the potential activity owners as the binder arrives in their personal activity lists. Use a positive number if you want to notify the potential activity owners after the deadline.
3. Select a time between repeated reminders (to be sent to both the activity owner and the job owner), along with a time unit. Zero means that no reminders will be sent.

**Note** Regardless of your setting, mail can be sent only in half-hour or longer intervals.

**Note** Keep in mind that some time may pass if a join has to happen first or if scheduled routing is used between the completion of one activity and the arrival of the binder at the next activity.

When you’ve finished with this tab, click OK to close the dialog box or another tab to assign further properties.

**Writing a description of an activity**
The Description tab in Basic Activity Properties allows you to give essential information about an activity. This can be important when potential activity owners are likely to receive different kinds of activities in their inboxes. It can also be useful for team members and activity readers. The description may appear in the main document or in an information box that appears when the workflow participant clicks on a button or link.

Follow these steps.
1. Open the basic properties dialog box if it isn’t already open, and click the Description tab.
2. Click in the text box and type in a brief description of the activity. You might include its goal, the form being used, and any other detail that will distinguish this activity from others in this process or in other processes.
   **Tip** You can provide detailed user help in the Description box.
3. Click OK to close the dialog box or another tab to assign further properties.
Setting reassignment properties for an activity

Reassignment allows an activity owner or job owner to reassign an activity to another person or organization unit. The activity owner must claim the activity first; the job owner can reassign an activity at any time.

Reassignment is a powerful way to accommodate emergencies or ad-hoc situations in your organization. For example:

• The activity owner must leave for an unanticipated business trip.
• The activity owner is overwhelmed with other work.
• The activity owner becomes ill suddenly and hasn’t set up substitutes in the Organization Directory database.

Caution Use reassignment carefully; it’s possible to let workflow participants reassign an activity endlessly, without anyone taking responsibility for it.

Follow these steps to set reassignment properties.

1. Open the advanced properties dialog box if it isn’t already open, and click the Reassign tab.
2. Select one of these options:
   • Not allowed. The activity owner can’t give up ownership after claiming the activity.
   • Allow among potential activity owners. Reassignment can be made only to the other potential activity owners of this activity.
   • Allow to any person. Reassignment can be made to any person or group listed in the Organization Directory database.
3. Click Do not allow further reassignment if you want only the original job and activity owner to be able to reassign the activity.
4. Click OK to close the dialog box or another tab to assign further properties.

Defining a team to work on an activity

The activity owner can always assign a team to assist on an activity. Team members can open binder documents for the relevant personal activities list in the application database. Team members can edit and add documents to a binder, but they can’t change the team membership or complete the activity and route it to the next owner. This can be done only by the activity owner or job owner.

Note We recommend that you select or exclude team members according to the groups they belong to, such as a workgroups or roles, or according to job property or formula, rather than individual persons. This avoids having to redesign a process if a person’s responsibilities change or if a person joins...
or leaves the organization. Such personnel changes are tracked more easily in the Organization Directory database.

**Selecting**

Team members should be those who can assist an activity owner in working on an activity. They should have specific skills or abilities suitable to the activity.

Follow these steps to select one or more team members.

1. Open the advanced properties dialog box if it isn’t already open, and click the Team tab.
2. Click the Select button for the Include list. A dialog box with a selection list appears.
3. In the drop-down menu, select the type of team member you want to include (Workgroup, Department, Role, etc.).
4. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.
5. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.
6. If you want to start over, click Clear to empty the list.
7. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Include box.

**Excluding**

You can select a subset of a group to be excluded from team membership. For example, if you select Marketing Department as team members, you can exclude persons with the job property “job initiator” from team membership.

Follow these steps to exclude organization units from team membership.

1. Click the Select button for the Exclude list. A dialog box with a selection list appears.
2. In the drop-down menu, select the type of organization unit you want to exclude (Workgroup, Department, Role, etc.).
3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.
4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.
5. If you want to start over, click Clear to empty the list.

6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Exclude box.

**Note** The Exclude list always overrides the Selection list. For example, if the workgroup “Marketing” is assigned as a team member and one person in Marketing, John Jackson, is excluded, all of the workgroup can access the binder documents except John Jackson. However, the activity owner who claims the activity can add John Jackson to the team during the course of a job.

**Setting the editing option**
To allow team members to edit documents in an unclaimed activity, click Allow editing before activity is claimed.

**Finishing up**
Click OK to close the dialog box or another tab to assign further properties.

**Selecting activity readers**

Readers can be selected at the process and activity level. Selecting readers at the process level is useful to provide read access to all documents in each step of a process for people who are not directly involved in the job. Selecting readers at the activity level is a way to provide wider access to certain activities if you have provided limited access at the process level.

Workflow participants with reader access can find all documents they have access to in the “For Your Interest” view in the application database.

**Choosing All readers vs. Selected readers**

First decide whether you want to restrict readers of the documents in the activity.

Follow these steps:

1. Open the advanced properties dialog box if it isn’t already open, and click the Readers tab. Find the box labeled Add to readers.

2. Do one of the following to indicate who should be allowed to read binder documents:
   - Click All if you want everyone who has the role [Reader] in the Access Control List of the application database to be allowed to read binder documents.
   - Click Activity owner if you want just the activity owner to have read access. This is the default setting. The activity owner has access to the binder documents regardless of other settings.
• Click Selected if you want to define who should be able to read binder documents.
Continue below.

Note We recommend that you select or exclude readers according to the groups they belong to, such as workgroups or roles, or according to job property or formula, rather than individual persons. This avoids having to redesign a process if a person’s responsibilities change or if a person joins or leaves the organization. Such personnel changes are tracked more easily in the Organization Directory database.

Adding potential activity owners
Potential activity owners are a special category of possible readers. By default, all potential activity owners for the activity retain reader status regardless of who actually claims the activity.

Click Potential activity owners become readers to uncheck the box if you want the remaining potential activity owners to lose reader access when one of them claims the activity.

Selecting readers
If you’ve chosen Selected in Add to readers, follow these steps to select one or more readers.

1. Click the Select button under Add readers. A dialog box with a selection list appears.
2. In the drop-down menu, select the type of owner you want to include (Workgroup, Department, Role, etc.).
3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.
4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.
5. If you want to start over, click Clear to empty the list.
6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Add readers box.
7. Continue below if you want to exclude anyone from reader access. Click OK or another tab if you don’t want to exclude anyone.
Excluding
You can select a subset of a group to be excluded from the readers. For example, if you select Marketing Department as readers, you can exclude those with the role Assistant so that only supervisors in the Marketing Department have reader access.

Follow these steps to exclude organization units from reader access.

1. Click the Select button for the Exclude list. A dialog box with a selection list appears.
2. In the drop-down menu, select the type of reader you want to exclude (Workgroup, Department, Role, etc.).
3. Select the name or names you want and click Add. (Hold down the Ctrl key to make multiple selections.) Your selections appear in the Selection list.
4. If you change your mind or make a mistake, highlight the entry in the Selection list and click Remove.
5. If you want to start over, click Clear to empty the list.
6. When you’re satisfied with your selections, click OK. The Properties dialog box will reappear, and the organization units you selected will be listed in the Exclude box.
7. When you’ve finished, either click OK to close the Advanced Activity Properties dialog box or click another tab to assign further properties.

Defining routing settings for an activity
Generally, routing of binders from activity to activity is done according to the setting at the process level. You can also define the routing mechanism for each activity, usually to modify or override the process-level setting.

Note You need to use this setting only if you’re overriding the process-level setting.

Two kinds of routing are possible in Lotus Workflow: immediate and scheduled.

Immediate. Routing is initiated by the activity owner immediately upon executing the Save and Complete command, and the core routing procedure takes place on the activity owner’s local (client) computer. If the activity is incomplete (a task not checked off or a manual routing option not selected, for instance), the activity owner is notified. Routing problems are also reported to the activity owner. The activity owner can try to solve the routing problem or forward the problem to another responsible person.
A possible disadvantage is that client-based routing takes time on the activity owner’s computer. With scheduled routing, the user can continue immediately with other tasks.

**Scheduled.** Routing is initiated by the server at scheduled intervals, and the core routing procedure takes place on the server. When the activity owner completes the activity and clicks the Save & Complete button, the binder is held (with the status “Ready to route”) until the scheduled agent executes. If the activity is incomplete (a task not checked off or a manual routing option not selected, for instance), the activity owner is notified. Routing problems are reported to the job owner.

**Note** In the last activity before a subprocess, scheduled routing always takes place regardless of the settings.

### Defining routing at the activity level

Follow these steps to define routing settings at the process level.

1. Open the advanced properties dialog box if it isn’t already open, and click the Routing tab.
2. Select one of the following:
   - Use process default (This is the default setting.)
   - Immediate (client-based) routing
   - Scheduled (server-based) routing
3. Click OK to close the dialog box or another tab to assign further properties.

### Assigning join settings at the activity or process link level

Join settings control how binders that have followed parallel routing paths are merged together in a subsequent activity or automated activity. These settings are usually defined at the process level. However, the settings can be overridden for any individual activity or automated activity, or in a process link to a subprocess.

Two options are available at the process level, activity level, or process link level: Keep all versions of a document and keep only the updated versions of a document.

- **Keep all versions.** One copy from each version of the document is kept, including the original, unchanged version of the document.
- **Keep only updated versions.** All updated versions of a document are retained and will be included in the joined binder. The original document is discarded unless it hasn’t changed in any of the parallel activities to which it was routed.
There are further settings for selecting the main document from the joined binders. See below.

**Modifying join settings at the activity, automated activity, or process link level**

Follow these steps to modify join settings at these levels.

1. Open the Advanced Activity Properties, Automated Activity Properties, or Process Link Properties dialog box if it isn’t already open, and click the Join Setting tab.
2. Click one of the following:
   • Keep all versions of a document
   • Keep only updated versions of a document
   • Use process default (This is the default setting.)

**Choosing a strategy for selecting the main document**

There must be only one main document in a binder. When a join occurs and more than one edited version of the original main document has been added to the binder, one of the versions must be chosen as the main document.

There are three options:

• Select manually by activity owner (activities only). The activity owner views the edited copies and chooses one.

• Randomly select from the available versions of the main document. Lotus Workflow selects one version of the main document at random. This is the preference if the main document isn’t going to change. It is the default setting.

• Select the main document coming from a particular activity. One of the activities in the parallel path has priority over the others.

Follow these steps.

1. Choose one of the following options:
   • Select manually by activity owner (activities only)
   • Randomly select out of available main documents
   • Select main document coming from activity

2. If you choose the last option, you must specify an activity. The easiest way is to choose it from among the activities listed in the Business Object library at the Workspace tab:
   • Click the Browse button (…). A listing of the available activities appears.
   • Double-click the activity from the list.
• Close the list by clicking the X.

**Caution** If the join strategy is “Keep only updated versions of a document” and the main document in the selected activity wasn’t modified during the work on that activity, an error message will appear at runtime.

**Disabling joins**
When several routing relations arrive at a single activity, automated activity, or process link, Lotus Workflow can’t immediately tell if they represent parallel paths (with copies of a binder that must be joined), independent paths (only one of the routing paths will have been used, and only one binder will arrive), or some combination of the two. A scheduled background agent figures out whether joining should take place and how to do the joins if they’re needed.

Disabling joins will speed up processing of the job, if you’re sure that the routing relations entering an activity, automated activity, or process link are independent (i.e., only one binder will arrive). If the process design is complex, and you can’t be certain that none of the paths are parallel, you shouldn’t disable joins.

To disable joins, click Disable join in the Join Setting tab.

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**About custom attributes**

Custom attributes allow for flexible application development of processes, subprocesses, activities, and automated activities. You can define an attribute for the process as a whole, for each activity or automated activity, or for a process link.

**Contents of custom attributes**

Custom attributes consist of an attribute **name** and a **value** associated with the name. The value has a **type**.

- The name should be unique and contain no special characters (except “@”). Also, the name must not end with the letters “OS,” since that sequence is reserved for use within the Workflow Engine.
- The values can have the type strings or Notes @formula.

Custom attributes are evaluated when a job runs. Therefore, the application developer can program specific actions relating to the execution of a job, while the parameter settings can be controlled from the process design rather than hard-coding them in scripts or fields on the forms.
How custom attributes work

Custom attributes are stored in the main document when the workflow engine routes a binder to the associated activity.

- For processes and process links, the custom attribute remains in the main document for the entire job or for the duration of the subprocess.
- For activities and automated activities, by default, the custom attributes are deleted from the main document the next time the binder is routed. Select the Persistent check box to maintain the custom attributes after routing.
- If you want to display the values, you (or the application designer) must facilitate fields on the relevant form where the field name is the attribute name.

The value of the custom attribute is processed at runtime and stored at the level at which it was created:

- Text strings are stored in the main document as string values.
- Notes @formulas are evaluated first and the resultant value is stored in the main document.

Sample usage

There are numerous ways in which to use this functionality.

For example:

- You can create audit trail documents only for certain activities in a job but not for all.
- You can easily write generic agents because automated activity values can be passed down to your agent and be available exactly when you need them. A “field-level-join” agent, for instance, could have generic code to loop through a binder after a join has taken place and merge the fields named in a custom attribute called “FieldsToJoin.”
- You can use an attribute called “Alias” in every activity and refer to the Alias name in hide-when formulas rather than the ActivityName itself.

For the steps to create custom attributes, see Creating custom attributes.
Creating custom attributes

For an overview of custom attributes, see About custom attributes.

Follow these steps.

1. If it isn’t already open, open the Advanced Process Properties, Advanced Activity Properties, or Automated Activity Properties dialog box, and click the Custom tab. Any existing attributes, values, and types will display.

2. Click New. The Add Attribute dialog box will display with three areas to fill in.

3. Type in a name for the attribute. Don’t end with “OS” or use any special characters (except “@”), and make sure the name is unique if there are more than one.

4. Select String or @Formula from the drop-down list.

5. Enter text or a formula in the Attribute value box.
   - If you’re entering a formula, click the Formula button to go to the Formula edit dialog box. See Writing Lotus Workflow formulas for details.

6. If you want the custom attribute to remain active throughout the rest of the routing of the binder, click the Persistent check box.

7. Click OK to close the dialog box or another tab to assign further properties.

Assigning properties to automated activities

Automated activities require no user intervention. When a binder is routed to an automated activity, the binder documents are processed and sent to the following activity. Three kinds of automated actions can be defined: LotusScript agents, mail, and server-driven programs.

Each automated activity in a process must have properties assigned to it in order for the process to work. You may want to assign all or most of the properties as you create each automated activity, lay out the entire process before making the assignments, or devise some other approach to the task. It’s probably a good idea at least to name the automated activities as you create them, in order to keep track of them.

Note If you’re using an existing process as the basis for a new process, be aware that the properties of the old automated activities may not be suitable for the new ones.

Each automated activity must have at least two properties: an activity name and an action.
Automated activity properties are set in one properties dialog box: Automated Activity Properties.

Follow these steps to open the automated activity properties dialog box.
2. Choose Properties. The property settings display as tabbed pages in the dialog box.
3. Click the tab for the property you want to set.

**Basic Properties**
See the following topics to find out how to set each property.
- Naming an automated activity
- Defining an automated action
- Assigning join settings at the activity or process link level
- Writing a description of an automated activity
- Creating custom attributes

**Naming an automated activity**
Every automated activity must have a name.
Follow these steps.
1. Right-click on the automated activity and choose Properties.
2. Type a name for the activity in the Name box.
3. Click OK to close the dialog box or a tab to assign properties.

**Tip** It’s a good idea to keep your automated activity names short. Typically, the graphic for the automated activity displays a maximum of three lines of about 8 to 10 characters each. Text beyond three lines is saved, but it won’t display in the process diagram.

**Tip** If you can, try to make automated activity names unique. For large organizations with many processes, this may of course be impossible.
Defining an automated action

Several automated actions are available: trigger an agent, send e-mail, launch a server-driven program, load a script library, execute a Domino.Doc action, or execute a custom action.

**Note** The first activity in a process can be automated only if it’s the first activity of a subprocess or the process is initiated by an external event, as in form-based initiation or mail-based initiation.

Follow these steps to define the action of an automated activity.

1. Open the Properties dialog box if it isn’t already open, and click the Action tab.
2. Choose one of the available options. Each option is described below.

**Send mail**

Choose this option to send e-mail to recipients you specify. The subject line and body of the mail are formulas evaluated in the Lotus Workflow Engine.

Follow these steps.

1. Click Send mail. The tab appearance changes to display three fields.
2. Click Select. The Select Mail Recipient dialog box displays.
3. Select the individuals or groups that will receive this mail.
   - Click Add to add a highlighted name to the Selection list.
   - If you change your mind, highlight an entry in the Selection list and click Remove.
   - Click Clear to empty the Selection list and start over.

**Tip** In many cases, the most appropriate recipient is expressed in a job relation or formula, such as Previous Activity Owner or Manager of Initiator. You can display job relation and formula lists by clicking on the drop-down menu.

4. Click OK. The names will be entered in the Send to box.
5. Enter the subject and body of the e-mail.
   - You can have these items refer to variables by including them in a formula. To do so, click the Formula button. See Writing Lotus Workflow formulas for details.
   - Static text must be surrounded by quotation marks; otherwise it will be interpreted as a formula.

**Example:** @Relation([Manager of Employee],@JobProperty([Initiator])) + “has rejected your request.”
• To insert a new line within the body of the memo, use @Char(13), which will insert a carriage return (ASCII 13 in decimal notation).

6. Click OK to close the dialog box or another tab to assign further properties.

Agent
Choose this option if you want to trigger one of the LotusScript or Java agents available in the application database.

Note Only agents based on the Lotus Workflow automation templates (LotusScript and Java) can be used as automated activities. The automation templates provide supporting code that retrieves binders to be processed and update binder status.

Follow these steps.
1. Click Agent. Choose an agent from the drop-down list.
   • The LotusScript agent is entitled OS Automation Template.
   • The Java agent is entitled OS Automation Template - Java.
2. Click OK to close the dialog box or another tab to assign further properties.

Server program
Server-driven programs are launched from within the Notes server. They appear as resources in the Organization Directory database.

Server-driven programs can be used in many ways. Here are a few examples:

If an order is placed during a process, an automated activity can start a program that dials up the pager of the person responsible for ordering the goods to inform that person about the new order.

In a process that handles orders, data in external databases can be located and inserted into binders, thereby using the multiple interfaces supported by Lotus Notes.

In credit applications, actual transactions may be conducted by triggering mainframe procedures.

Follow these steps.
1. Click Server program. The tab appearance changes to display two fields
2. Click the browse button (…) and select a server program.
3. Add any command line parameters you want to pass on to the program.
   • If the parameters include a Notes formula, click the Formula button
either to go to a Formula edit dialog box. See Writing Lotus Workflow
formulas for details.
4. Click OK to close the dialog box or another tab to assign further
properties.

**Script Library**
Choose this option if you want to execute code stored in a Lotus Script
Library.

**Note** Only libraries based on the Lotus Workflow automation template can
be used in automated activities.

Follow these steps.
1. Click Script Library. Choose a library from the drop-down list.
2. Choose a class name from the list of class names.
3. Click OK to close the dialog box or another tab to assign further
properties.

**Router**
This action allows the binder to pass through the automated activity
without change. It is used in some advanced process designs.

**Domino.Doc actions**
Several Domino.Doc actions are provided in the Action type list: Checkout,
Checkin, Search, and Archive.

Follow these steps.
1. Choose a Domino.Doc action. The box below will display a list of
parameters and values, and an indication whether each is required.
   A box at the bottom describes the action. The same description appears
   if you click the Info button.
2. Highlight a parameter and read its description in the box at the bottom.
3. Click the Modify button to change the value of a parameter.
   Depending on the parameter you select, the Modify button will lead to a
dialog box with two or more choices or to the Formula edit dialog box.

**Tip** The Access Profile is set up in the Setup Document of the
application database. See the Lotus Workflow Installation and
Administration Guide, the Domino.Doc Integration Guide, and
4. Click OK to accept the modifications or Cancel to close the dialog box without changes.

5. Click OK to close the Properties dialog box or another tab to assign further properties.

**Execute a custom action**

Custom actions are a named group of related attributes that can be associated with the execution of an agent of the loading of a Script Library. The attributes associated with a custom action are specified in initialization files read by the Lotus Workflow Architect. Your Workflow administrator sets up those files. See the Lotus Workflow Installation and Administration Guide.

Follow these steps.

1. Click the name of the custom action you want to execute.

2. Click the Modify button to set the appropriate attribute values. Custom action attributes are set using the same dialog box used to set custom attributes (except in the case of keyword lists, in which case you may simply choose the appropriate value).

3. Click OK to close the dialog box or another tab to assign further properties.

**Writing a description of an automated activity**

The Description tab in Automated Activity Properties allows you to give essential information about an automated activity. This information can be useful in maintaining the process or in reusing the automated activity in other processes.

Follow these steps.

1. Open the Properties dialog box if it isn’t already open, and click the Description tab.

2. Click in the text box and type in a brief description of the automated activity. You might include its goal and a summary of what happens (e-mail notification, launching a server-driven program, etc.) and any other detail that will distinguish this automated activity from others in this process or in other processes.

3. Click OK to close the dialog box or another tab to assign further properties.
Assigning properties to process links
A process link is a graphic element in a process diagram indicating a subprocess that’s contained within a host process.

Features of subprocesses
- Any host process may contain several subprocesses.
- A host process may also be a subprocess of another host process.
- Subprocesses themselves may contain subprocesses.
- You can create a subprocess from scratch or use an existing host process or subprocess.
- Subprocesses must be activated and checked for syntax separately from their host processes.
- A subprocess may have only one end node.
- Any number of host processes may link to a subprocess.
- Subprocesses don’t have to be located in the same application database or even on the same server as the host process. However, server access settings and Access Control Lists of the applications will affect user access to the subprocesses. The Notes/Domino and Workflow administrators need to coordinate access rights carefully if multiple application databases are used.
- Any changes to a subprocess will affect any host processes that link to it.

Reusability of subprocesses
Stored subprocesses provide reusable building blocks for creating new processes. High-level designs can be designed and implemented very quickly using existing subprocesses. The high-level designs can be maintained and customized globally by modifying their subprocesses.

Routing relations in subprocesses
When a subprocess is started during the course of a job, the affected binder is duplicated. One copy remains in the host process a place-holder and has the status “Submitted.” The other copy is routed to the first activity in the subprocess and has an initial status “Ready to route.”

When the subprocess has completed its activities, its binder is routed to the next activity in the host process. At this point the place-holder copy of the binder is deleted. If the host process and subprocess run in different databases, the binders of the related databases are transferred by mail.
Assigning properties
The process link to a subprocess has several sets of properties that must be set. There are basic and advanced properties of the subprocess itself, plus properties of the process link.

Follow these steps.

1. Right-click a process link. A pop-up menu will appear.
2. Choose Basic Properties, Advanced Properties, or Link Properties. The property settings display as tabbed pages in the dialog box.
3. Click the tab for the property you want to set.

Note  The Basic and Advanced properties for subprocesses are identical to those for host processes.

Basic properties
See the following topics to find out how to set each basic process property.
Naming the process
Selecting a job owner
Assigning initiators to the process
Selecting forms at the process level
Setting the timing for a job
Verifying the version number of a process
Writing a description of a process

Advanced Properties
See the following topics to find out how to set each advanced process property.
Enabling the audit trail
Enabling archiving for a job
Defining routing settings in a process
Assigning join settings at the process level
Selecting process readers
Creating custom attributes

Link Properties
See the following topics to find out how to set process link properties.
Assigning process link properties
Assigning process link properties

Process link properties designate whether the host process or subprocess will determine the initiator, job owner, and audit trail settings. They also designate which application database will be used for the subprocess, and any join settings that may be needed if multiple binders are routed to the subprocess.

Follow these steps.

1. Right-click a process link. A pop-up menu will appear.
2. Choose Link Properties. The property settings display as tabbed pages in the dialog box.
3. Click the tab for the property you want to set.

See the following topics to find out how to set each process link property.

Naming the process link

Assigning general properties to a process link

Assigning a target application database to a process link

Assigning join settings to a process link

Writing a description of a process link

Assigning general properties to a process link

Host processes and subprocesses share three general process-level properties: initiator, job owner, and audit trail settings. You must decide whether the host or the subprocess will control the properties.

Follow these steps to assign these general properties.

1. Open the Link Properties dialog box if it isn’t already open, and click the General tab. A panel displays with three settings.
2. Select the setting for Initiator:
   • Host Process: The initiator of the host process is also the initiator of the subprocess.
3. Select the setting for Job Owner:
   - Host Process: The job owner of the host process overrides the job owner of the subprocess.
   - Subprocess: The job owner of the subprocess remains the job owner of the subprocess.

4. Select the setting for the Audit Trail:
   - Host Process: The subprocess will follow the same audit trail settings as the host process.
   - Subprocess: The subprocess will follow its own audit trail settings.

5. Click OK to close the dialog box or another tab to assign further properties.

Assigning a target application database to a process link

The subprocess represented by a process link may run in the same application database as the host process or in a different application database. The Process Link Properties dialog box must indicate which database to use.

Selecting the database
Follow these steps.

1. Open the Link Properties dialog box if it isn’t already open, and click the Target DB tab.

2. Select the application database:
   - Leave Same as host process selected if the host process and subprocess will run in the same database.
   - Click OK to close the dialog box or another tab to set further properties.
   - Click Specify by formula if the subprocess will run on a different database.
   - Continue below.

Specifying a different application database
If you’ve selected Specify by formula, you must use a formula to specify the other application database. An e-mail connection must also exist between the two application databases. Consult with your application designer or Workflow administrator regarding setting up the application databases as mail-in databases.
Follow these steps to specify a different database in which the subprocess will run.

1. Click the Formula button. The Formula edit dialog box will display.
2. You can use a formula or the Business Object library.
   - Enter a formula using the Fields and Functions tabs. See Writing and testing formulas for further information.
   - Click the Library tab to use the Business Object library. In the drop-down menu select Application database. A list of available application databases will display. Double-click on the database you want to use.
3. Click OK. The formula or database information will appear in the Process Link Properties dialog box.
4. Click OK to close the dialog box or another tab to set further properties.

Assigning join settings to a process link

Multiple binders may be routed to a process link along parallel routing paths. If the specific join settings are assigned to a subprocess, they will override any assigned join settings in the host process, but only for the duration of the subprocess.

See Assigning join settings at the activity or process link level for further instructions.

Writing a description of a process link

The Description tab in Process Link Properties allows you to give essential information about a process link. This can be important for workgroup participants, team members, and readers as they view a process.

Follow these steps.

1. Open the Link Properties dialog box if it isn’t already open, and click the Description tab.
2. Click in the text box and type in a brief description of the subprocess. You might include its goals, end product, who the participants are going to be, and any other detail that will distinguish this subprocess from the others.
3. Click OK to close the dialog box or another tab to assign further properties.
About assigning properties to routing relations
Routing relations are represented in a process diagram by straight or angled arrows between activities, automated activities, clusters, and process links. The routing relations show the path between these job steps and also contain logic determining how the routing is carried out.

Tip When multiple routing paths exit the same activity (or other job step), make sure you’ve thought carefully about the routing logic. The three most common errors are the following:

- **Endless loop.** The binder is trapped in a loop that can route it repeatedly back to the same activity with no escape.
- **Dead end.** The binder arrives at an activity and never leaves. This can happen if two conditions aren’t mutually exclusive. The most common mistake is to create a condition in which a certain amount must be less than or greater than a certain amount. If one of the conditions doesn’t include the exact amount, routing will stop if the exact amount is achieved. (Solution: make one of the conditions “less than or equal to” or “equal to or more than.”)
- **Unreachable path.** A condition will never be met, or an Else relation will never be needed.

Types of routing relations
The Lotus Workflow Architect provides for five types of routing relations, as follows:

**Always**
Binders are always routed along this path. This is the default when setting up a routing relation. Choose this if, as part of the activity, the activity owner doesn’t have to choose among alternatives.

More than one Always path can exit an activity. In that case, a copy of the binder is sent to each of the job steps it is routed to, on parallel paths. When parallel routing paths meet at a single activity later on, their binders are automatically joined.

See Assigning join settings at the process level and Assigning join settings at the activity or process link level for details.

**Exclusive choice**
In Exclusive choice routing, the activity owner must choose exactly one routing relation of two or more alternatives exiting the activity. The choice is presented as a routing option to be selected in the main document for the activity. If no choice is made when attempting to close and route the activity, the activity owner is prompted to make one.
**Multiple choice**  
A Multiple choice option requires the activity owner to choose none, one, or more routing relation from among those exiting the activity. The choice is presented as a routing option to be selected in the main document for the activity. If no choice is made when attempting to close and route the activity, the activity owner is prompted to make one.

**Note**  
Because it’s possible that no path will be chosen from among the multiple-choice options, we recommend that you also include an Else routing relation (or some other type of routing relation) in conjunction with the multiple choices.

**Condition**  
Routing can be accomplished according to conditions that exist in the activity or preceding activities. The condition may be a decision that the activity owner must make (approve / disapprove for example), or it may be based on a formula that evaluates during the running of the activity (a value below or above a certain amount, for example).

- A decision is set up in the activity from which the routing relation exits. When you choose one of the decision options on the routing relation, the Architect automatically inserts the correct formula expression for it. The binder is routed along this routing path if the activity owner chooses this option, causing the formula expression to evaluate to “true.”

See Specifying a decision.

- If you use a formula expression (or if you refine the formula generated by a decision choice), the binder is routed on this routing path if the formula evaluates to “true.” Typically, condition formulas refer to keywords or number fields contained within binder documents.

See Setting up conditions for routing relations for details

**Else**  
Else routing relations are used in conjunction with Multiple choice or Conditional routing relations. It’s possible that none of the options defined in a Multiple choice or Condition relation are selected or evaluate to “True.” If this occurs, and no other Always or Exclusive conditions are specified, no path to a subsequent activity or other job step will be found when the job is running. This will lead to a runtime error handling procedure in which the job owner is informed of a routing failure. Else routing relations are activated only if no other routing paths are available.

**Note**  
It doesn’t make sense to use Else by itself (that is, when there is only one routing path exiting the activity) or in conjunction with Always or Exclusive choice routing. With Always or Exclusive choice, the Else routing path will never be used.
Setting up routing relations

See the following topics:

Naming the routing relation
Choosing the routing relation type
Writing a description of a routing relation

Naming the routing relation

A name is required for Exclusive and Multiple choice routing relations and optional for the other types. A proliferation of name labels can make the process diagram hard to read. However, you may want to label any routing relation, if doing so will make it easier for workflow participants to understand the process.

Follow these steps.

1. Right-click on a routing relation arrow and choose Properties.
2. Type a name for the routing relation in the Name box.
3. Click OK to close the dialog box or a tab to assign properties.

Choosing the routing relation type

Routing relations are represented in a process diagram by straight or angled arrows between activities, automated activities, clusters, and process links.

Five types or routing relation are available in the Lotus Workflow Architect. For a description and discussion, see About Assigning properties to routing relations.

Follow these steps to choose the routing relation type for each routing relation arrow in the process diagram.

1. Open the Routing Relation Properties dialog box if it’s not already open:
   Right-click on the routing relation arrow and choose Properties.
2. Click one of the choices: Always, Exclusive choice, Multiple choice, Condition, or Else.
3. If you select Condition, the Condition edit field becomes active.
   See Setting up conditions for routing relations for step-by-step instructions.
4. Click OK to close the dialog box or the other tab to enter a description.
Setting up conditions for routing relations

Routing relations — represented by the arrows in a process diagram — may be conditional. This means that the binder will be routed along the routing path only if certain conditions are met in the activity from which the routing path exits. The condition may be a decision made by the activity owner or some value generated by a formula in the activity and evaluated during the running of the job.

For a general discussion of routing relations, see About assigning properties to routing relations.

For general instructions for assigning routing relation properties, see Choosing the routing relation type.

Follow these steps to set up conditions in routing relations.

1. Open the Routing Relation Properties dialog box if it’s not already open:
   Right-click on the routing relation arrow and choose Properties.
2. Click Condition. The Condition edit field becomes active.
3. Click the Formula button if you want to enter a formula or the Decision button if the activity or other job step before the routing relation contains a decision.
   • Formula: The Formula edit dialog box displays. Enter a formula that will evaluate to “True” or “False” during the running of the job. See Writing and testing formulas.
   Note If there’s a Decision tab in the right-hand panel of the dialog box, a decision has been set up in the activity just before this routing relation. If that was your intention, simply click the Decision tab and proceed to the instruction below. If you’re not sure, review the activity to verify what you intended.
   • Decision: The Formula edit dialog box displays, with the Decision tab selected. Double-click the decision choice that’s appropriate to your process design. The correct formula will be generated and appear in the panel to the left. This formula can be used without further modifications.
   Note If the Decision tab isn’t displayed, the activity above the routing relation doesn’t contain the correct decision information. Review and correct that activity before proceeding. See Specifying a decision.
Writing a description of a routing relation

If the routing relation involves a choice or condition, a description can be helpful to workflow participants and to process designers maintaining the process.

Follow these steps.

1. Open the Routing Relation Properties dialog box if it’s not already open:
   Right-click on the routing relation arrow and choose Properties. Click the Description tab.
2. Enter your description.
3. Click OK to close the dialog box or the other tab to choose the routing relation type.

About decision points

Decision points are represented in a process diagram by a diamond shape. The arrows representing routing relations between activities, automated activities, clusters, and process links run into and exit from decision points. Decision points represent the points in a process where the workflow can follow various paths depending on the logic contained in the decision point.

The advantages of using decision points

While you can use the routing relationships to do everything that you can do with decision points, in many cases using decision points has advantages over just using routing relationships.

Using decision points for clarity

You can use decision points as a way of clarifying the flow between activities and making the routing conditions explicit. Compare the process diagrams below. The first one uses routing relationships while the second one creates the same conditions using decision points to clarify the process flow and make the conditions more explicit.
Using decision points to simplify formulas

Decision points can also reduce the need to repeat complex formulas for several routing relations. You can assign a formula to a single decision point, evaluate it once, store the outcome, and refer to this value on the various routing relations that branch out from the decision point, as shown by comparing the process diagrams below.
Using decision points for efficiency
Using decision points allows you to reuse routing conditions and edit process diagrams more efficiently. In the diagram below without decision points, the Initiator can review a request that was rejected by the manager and can then change the amount so it is below $1000 when the activity completes. Then the process designer must re-model the existing routing conditions. If the threshold amount of $1000 changes, the process designer might need to make changes to four different routing conditions.
The diagram below using decision points shows that the process designer can simply reuse the decision point by dragging a single connector back. You don’t need to write another routing condition. Also, if the threshold amount of $1000 changes, you can make a single change to the decision point, instead of changing four different routing conditions.

In addition, decision points provide more flexibility for exclusive and multiple choices. With exclusive or multiple choices, using the arrows exiting the activity provides end-users with a default prompt: “Please select one or more of these routing options.” The choices are the labels on the arrows. Decision points give you more flexibility, and you can use the labels on the routing options as prompts.
Avoiding decision point design errors

The Start node and End node can’t be decision points. When multiple paths exit a decision point, make sure you’ve thought carefully about the routing logic out of the decision point. The three most common errors are the following:

- **Endless loop.** The binder is trapped in a loop that can route it repeatedly back to the same activity with no escape.

- **Dead end.** The binder arrives at an activity and never leaves. This can happen if two conditions in the decision point aren’t mutually exclusive. The most common mistake is to create a condition in which a certain amount must be less than or greater than a certain amount. If one of the conditions doesn’t include the exact amount, routing will stop if the exact amount is achieved. (Solution: make one of the conditions “less than or equal to” or “equal to or more than.”)

- **Unreachable path.** A condition will never be met, or an Else relation will never be needed.

**Multiple decision points in sequence.** Using several decision points one after another can have an impact on runtime because the Lotus Workflow Backgrounder needs to evaluate all the routing relations involved, and this evaluation can cause inefficiencies. It’s best to use a mix of decision points and the traditional routing relations in designing your process diagrams.

Types of decision points

The Lotus Workflow Architect provides three types of decision points, as follows:

- **Exclusive choice**

  Exclusive choice decision points can have only exclusive choice routing relations exiting from the decision point. The activity owner must choose exactly one routing relationship of two or more alternatives exiting the decision point. The choice is presented as a routing option to be selected in the main document for the activity. If no choice is made when attempting to exit the decision point, the activity owner is prompted to make one, and the decision point label can be used as a prompt.
Multiple choice
Multiple choice decision points can have only Multiple, Conditional, and Else routing relations exiting from the decision point. A Multiple choice decision point requires the activity owner to choose none, one, or more routing relationships from among those exiting the decision point. The choice is presented as a routing option to be selected in the main document for the activity. If no choice is made when attempting to close and route the activity, the activity owner is prompted to make one.

Note Because it’s possible that no path will be chosen from among the multiple-choice options, we recommend that you also include an Else routing relation (or some other type of routing relation) in conjunction with the multiple choices.

Condition
Condition decision points can have only Multiple, Conditional, and Else routing relations exiting the decision point. With a Condition decision point, routing goes according to conditions specified in the decision point. The condition may be a decision that the owner of the previous activity must make (approve/disapprove for example), or it may be based on a formula that evaluates during the running of the activity (a value below or above a certain amount, for example).

- A decision is set up in the decision point from which the routing relations exit. When you choose one of the decision options on the routing relation, the Architect automatically inserts the correct formula expression for it. The binder is routed along this routing path if the activity owner chooses this option, causing the formula expression to evaluate to “true.”

- If you use a formula expression (or if you refine the formula generated by a decision choice), the binder is routed on this routing path if the formula evaluates to “true.” Typically, condition formulas refer to keywords or number fields contained within binder documents.

Setting up decision points
To begin setting up decision points, see Assigning properties to decision points.
Assigning properties to decision points

Decision points serve the same functions as routing relations and are backward-compatible with them in processes designed under earlier versions of the Lotus Workflow Architect. For an overview of decision points, see About assigning properties to decision points.

Follow these steps.
1. Right-click a decision point.
   A pop-up menu appears.
2. Choose Properties.
   The property settings display as tabbed pages in the dialog box.
3. Click the tab for the property you want to set.

For more information about how to set each process link property, see the following topics:
- Naming a decision point
- Choosing the decision point type
- Setting up conditions for a decision point
- Writing a description of a decision point

Naming a decision point

A name is required for all decision points to clarify the decision required and to make it easier for workflow participants to understand what to do.

Follow these steps.
1. Right-click the diamond that represents the decision point you want to name, and then choose Properties.
   The Decision Point Properties dialog box appears.
2. In the Name field of the Properties dialog box, enter a name for the decision point.
3. Click OK to close the dialog box or go on to specify Type or Description.
Writing a description of a decision point

Because decision points involve a choice or condition, a description can be helpful to workflow participants and to process designers maintaining the process.

Follow these steps.

1. Open the Decision Point Properties dialog box if it’s not already open.
2. Click the Description tab and enter your description.
3. Click OK to close the dialog box or the other tab to choose the decision point type.

Setting up conditions for a decision point

Decision points — represented by the diamonds in a process diagram — may be conditional. This means that the route the binder takes out of the decision point depends upon certain conditions being met. The condition may be a decision made by the activity owner or some value generated by a formula in the decision point and evaluated during the running of the job.

For a general discussion of decision points, see About assigning properties to decision points.

Follow these steps to set up conditions in decision points.

1. Open the Decision Point Properties dialog box if it’s not already open.
2. Click Condition.
   The Condition edit field becomes active.
3. Click the Formula button if you want to enter a formula or the Decision button if the decision point contains a decision.
   • Formula: The Formula edit dialog box displays. Enter a formula that will evaluate to “True” or “False” during the running of the job. See Writing and testing formulas.
   • Decision: The Formula edit dialog box displays, with the Decision tab selected. Double-click the decision choice that’s appropriate to your process design. The correct formula will be generated and appear in the panel to the left. This formula can be used without further modifications.
Choosing a type of decision point

Decision points are represented in a process diagram by a diamond shape. Three types of decision points are available in the Lotus Workflow Architect. For a description and discussion, see About assigning properties to decision points.

Follow these steps to choose the decision point type for each decision point in the process diagram.

1. Open the Decision Point Properties dialog box if it’s not already open.
2. On the Type tab, click one of the choices: Exclusive choice, Multiple choice, Condition.
3. If you select Condition, the Condition edit field becomes active. See Setting up conditions for decision points for step-by-step instructions about editing the Condition edit field.
4. Click OK to close the dialog box or the Description tab to enter a description.

Using the Business Object library

The Business Object library contains information from the Design Repertory database and the Organization Directory database, and the forms designed in the application database. You can click and drag these objects and drop them on appropriate places in your process diagram. As you design processes, the library will list more objects that you can reuse in subsequent processes. Every element of every process — including entire processes — can be reused as-is or used and modified in a new process.

General guidelines

- The Business Object library tab on the right of the screen has two buttons at the bottom. Click Business Object Library to display objects in the entire library. Click Workspace to display objects in the process that is currently displayed in the workspace.
- The listing for the Business Object Library tab has three main sections.
  - Select By process to see the design elements sorted by process.
  - Select By type to see the design elements listed and sorted for all processes.
  - Select By Hierarchy to see people and groups according to their place in the hierarchy.
• Click the “+” symbol next to any item (or double-click it) to expand it in the list. Click the “-” symbol to collapse the items in a list under their heading (or double-click the expanded heading).

• Right-click any object in the library to do any of the following:
  • Open it in a new window (if it’s a process).
  • View its properties.
  • Show all relations to it.
  • Send mail to a person or group.

  **Tip** You can change the properties of an object directly in the Business Object library. This can be somewhat dangerous for activities and other objects within a process, since you can’t see the context in which they were created. You may, however, find it convenient to edit formulas, resources, and organization units, which have general use across processes.

Depending on the object you’re dragging, you can drop it on the background, on process diagram nodes, on connectors, and in the property dialog boxes.

**Details**
See the following topics:

Using activities, automated activities, and process links in the Business Object library

Using organization units, job properties, and formulas in the Business Object library

Using routing relations in the Business Object library

Using forms in the Business Object library

**Using activities, automated activities, and process links in the Business Object library**
Activities, automated activities, and other processes are the basic building blocks of your processes. You can cut your development time considerably when you reuse these items.

You can drag one of these objects into the process window and drop it on any of the following objects:

**The background**
• After inserting the object, create connector(s) to and from the object and edit its properties if necessary.
Another activity, automated activity, or process link

- The old object is replaced, including its properties, with the new object.

A connector (routing relation)

- The new object “splits” the connector. Any condition or formula belonging to the original connector will stay with the activity or other object from which it exits.

Tip Different activities can have the same name in different processes. This could make them hard to distinguish in the By type folder of the Business Object library. Choose the By process folder to see objects organized in the context of their respective processes.

Note If you change the properties of an activity or automated activity that you’ve dragged from the Business Object library, it will appear in the library as a new object when you save your new process. The original object in the library will remain unchanged.

Caution Changing the properties of a process or process link will change that object in the Design Repository database. This may have an unexpected or undesired effect on the previously written process or subprocess.

Using organization units, job properties, and formulas in the Business Object library

These objects can be used in the activities and process links you’re creating.

You can drag one of these objects into the process window and drop it on any of the following objects:

Activity

- Left-click and drag: The object becomes one of the potential activity owners.

- Right-click and drag: You’ll get a pop-up menu with these options:
  - Add to owner
  - Add to reader
  - Add to team
  - Exclude from owner
  - Exclude from reader
  - Exclude from team

Automated activity

- Left-click and drag: The object is added to the mail recipients of a send mail activity; otherwise you’ll be prompted to change the automated activity to a send mail activity.

- Right-click and drag: You’ll get a pop-up menu asking if you want to add the object to the mail recipients.
Process link
- Left-click and drag: The object is added to the list of job owners.
- Right-click and drag: You’ll get a pop-up menu with these options:
  - Add to owner
  - Add to reader
  - Exclude from owner
  - Exclude from reader

Caution If you add to the process link, you’re modifying the process in the Process Design Repository database. This may have an unexpected or undesired effect on the previously written process or subprocess.

Basic and Advanced Properties dialog boxes
- Drag organization units, job properties, and formulas directly onto the Include and Exclude lists for owners, teams, and readers.

Using routing relations in the Business Object library
Routing relations in the Business Object library can be used to replace connectors in your new process or to create new connectors.

You can drag a routing relation into the process window and drop it on any of the following objects:

Connector
- The old connector will be replaced by the one you’ve dropped on it.

Activity, automated activity, or process link
- The node on which you dropped the routing relation becomes the starting node. Drag the other end of the connector to its destination and click the left mouse button.
- If you change your mind, click the right mouse button.

Using forms in the Business Object library
The forms that have been created in the application database can be reused in new processes as main documents or new documents added to an activity.
You can drag a form into the process window and drop it on any of the following objects:

**Activity**
- Left-click and drag: The form becomes the main document for that activity, overriding the main document specified for the process.
- Right-click and drag: You’ll get a pop-up menu with these options:
  - Use as main document
  - Include in new documents
    If you choose Include in new documents, the form will be added to any existing forms that were selected.

**Process link**
- Left-click and drag: The form becomes the main document for the subprocess.
- Right-click and drag: You’ll get a pop-up menu with a prompt to use the form as the main document.

**Basic Properties dialog box**
Drag a form into an open property dialog box in which the Forms tab is active — to either the main document drop-down menu or the list of forms allowed for new documents.

**Writing and testing formulas**
Formulas can be used at several stages in process design:
- processes
- activities
- automated activities
- routing relations

Formulas can be used to specify process or activity participants, job properties, parameters to be passed to server-based programs, and routing relation conditions.

The table below summarizes where formulas can be used, where they are evaluated, and what the formula evaluates to. Most `@Formulas`, such as `@If()`, `@IsMember()`, or `@Substring()`, can be used. Some formulas, however, such as `@Prompt`, aren’t available. Also, `@Commands` aren’t supported.

Job properties provide important shortcuts for writing formulas. See Job properties delivered with Lotus Workflow for a list of job properties you can use. You or another Lotus Workflow administrator can also write new job properties. See the topic Creating a job property document in the Installation and Administration Guide.

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See the following topics for step-by-step instructions:

Writing Lotus Workflow formulas

Testing Lotus Workflow formulas

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<th>Formula can be used to determine…</th>
<th>Formula is evaluated on…</th>
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<tbody>
<tr>
<td>activity owner</td>
<td>main document</td>
<td>organization unit</td>
<td>yes</td>
</tr>
<tr>
<td>team</td>
<td>main document</td>
<td>organization unit</td>
<td>yes</td>
</tr>
<tr>
<td>reader (activity level)</td>
<td>main document</td>
<td>organization unit</td>
<td>yes</td>
</tr>
<tr>
<td>reader (process level)</td>
<td>main document</td>
<td>organization unit</td>
<td>yes</td>
</tr>
<tr>
<td>job owner</td>
<td>main document</td>
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<td>yes</td>
</tr>
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<td>Send mail</td>
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<tr>
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<td>yes</td>
</tr>
<tr>
<td>application database</td>
<td>main document</td>
<td>any string value</td>
<td>yes</td>
</tr>
<tr>
<td>job properties (Organization</td>
<td>main document of binder on which it is applied</td>
<td>any value</td>
<td>yes</td>
</tr>
<tr>
<td>Directory)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>archive Move or Delete sections</td>
<td>all binder documents — a binder belongs to the collection if the formula evaluates to @True</td>
<td>document selection</td>
<td>no (comparable to a view selection formula)</td>
</tr>
</tbody>
</table>

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Custom formulas provided with Lotus Workflow

Lotus Workflow provides three custom formulas that are evaluated on the main document of the related binder (that is, the binder that is routed along a routing relation for a conditional routing relation). Therefore all fields of the main document can be referenced directly. Lotus Workflow formulas are made up of “normal” Notes macro formulas.

For example: The formula @if(CreditLimit<2000; @False; @True) will return @True if the number contained within the field CreditLimit of the main document is larger than or equal to 2000.

The following descriptions refer to all participants and routing relation formulas.

Note You can test formulas before they’re used in runtime environments: See Testing Lotus Workflow formulas.

@BinderLookup(fieldname; Document Selection Formula)

This function is used to access the contents of other documents. The function returns the value of the specified field within the specified document. If the specified document selection formula doesn’t uniquely specify exactly one binder document, a runtime error occurs. The selection formula applies to binder documents only; therefore, documents outside the binder can’t be referenced with this function.

Example: The formula @BinderLookup(subject; form = “Memo”) returns the contents of the field “subject” of the binder document using the “Memo” form.

@Relation([name of relation]; input parameter)

This expression can be used to refer to relations defined in the Organization Directory database. It returns a value depending on the Relation and the input parameter specified in the formula. A variable can’t be used as input to a Lotus Workflow formula.

Example: The formula @Relation([Manager of Department]; “Marketing”) would return the name of the manager of the Marketing department.

Example: The formula @Relation([Birthday of]; “Jake Hanson”) would return Jake Hanson’s birth date.

For a list of relations delivered with Lotus Workflow, see Relations delivered with Lotus Workflow.
@JobProperty([name of property]; optional parameter)

This formula can be used to abbreviate often-used formulas. It refers to another formula that is specified in the application database (custom job properties can be stored in the Organization Directory). Job properties are typically applied to workflow control data, such as identifying the job owner, the activity owner of a current or prior activity, or the job due date.

As most of this information is contained within the binder itself, you can refer to it directly by accessing the field values. However, it’s often valuable to define a job property as a shortcut in writing formulas.

Example: Instead of using @BinderLookup(InitiatorOS; CoverDocOS = “yes”) to refer to the initiator of a job, you can define a job property document in the Organization Directory and refer to it as @JobProperty([Initiator]).

In some cases, an additional input parameter is needed. In this case, you can use the @Input expression in your definition of the job property. At runtime the @Input is substituted by the parameter specified in the @JobProperty expression.

Example: You can specify a job property in the Organization Directory using the following formula: @BinderLookup(InitiatorOS; CoverDocOS = “yes”) = @Input. This job property would be called “Is Initiator” and would be referred to as @JobProperty([Is Initiator]; [Customer]). This expression will return “True” if the name contained in the field “Customer” in the main document of the binder equals the initiator of the job.

Document selection formulas
Document selection formulas are used to describe document collections for archiving. The formula can contain all @Formulas available in a view selection. The custom Lotus Workflow formulas such as @BinderLookup can’t be used.

Example: If the formula Form = “Order” is used, only documents using the form “Order” will be moved to the archive.

Referring to organization units
If you want to refer to workgroups, departments, persons, or roles in formulas, simply put their names in double quotation marks.

Example: @if(CreditVolume > 50000; “Senior Management”; “Management”)
Always remember to distinguish between strings and fields:

Example: `@if(Zip/Code > 20000; MarketingWest; MarketingEast)` doesn’t refer to the business entities “Marketing West” and “Marketing East” but to a field having the same names in the main document of the binder.

In some cases, Notes may not prompt you with an error message, since it assumes such fields are empty.

**Departments, including subsidiary departments**
Generally, when you refer to a department, only direct members — persons — are addressed. If you specify a department as an activity owner, for example, people in the subsidiary department can’t claim the activity.

To address all subsidiary departments as well, add “(+)” after the department name.

Example: Where “Marketing” refers to the Marketing department, excluding any subsidiary departments, “Marketing (+)” refers to the Marketing departments and all of its subsidiary departments.

**Caution** Be careful using this feature, especially for team and reader assignments, because all names have to be inserted separately in every binder document. In a large organization, the Lotus Notes document limit of 16K for text fields may be reached. Using flexible team assignments or open reader rights will help this situation.

Workgroups are just the opposite — they’re evaluated with all subsidiary workgroups unless you use “(-)” in the formula. This will ensure that only the given workgroup is evaluated, not with subsidiary groups.

**Note** You must put a space between the department name and the (+) and between the workgroup name and the (-).

See Enabling archiving for a job.

**Writing Lotus Workflow formulas**

Formulas are created and stored in the Lotus Workflow Architect. These formulas are business objects containing properties that are saved in the Design Repository database. They are handled independently of processes — that is, they don’t have to be used in a process before they can be saved.

Wherever a formula can be used, the dialog box has a Formula button. When you click the Formula button, a Formula edit dialog box displays. There’s a large box on the left and a set of three or four tabs on the right.

You can enter a formula directly into the large box on the left, or you can use the items listed at the tabs to assist you in writing formulas.
Follow these steps.

1. Click the Formula button to display the Formula edit dialog box.
2. Click one of the tabs for assistance in composing the formula:
   - Fields. Three lists display: Operators, Forms, and Fields. When you select a form, the Fields list changes to show all available fields in that form. The operators are the relations and Boolean expressions you need for composing formulas. Double-click a field to place it in the formula box. Single-click an operator from the drop-down list to place it in the formula box.
   - Functions. The list displays all functions that have been saved in the Design Repository database. Double-click on a function to place it in the formula box.
   - Library. The Business Object library displays. Click the drop-down arrow at the top and choose Formula. A list of available @Formulas will display. Double-click on a formula to place it in the formula box.
   - Decision. This tab displays only if decision alternatives have been entered in the preceding activity. Double-click a decision choice to place its underlying formula into the formula box.
3. If necessary, edit the formula in the formula box. The normal keyboard editing controls are available: delete, backspace, cut, copy, paste. There is no Undo function, however.
4. Click OK to return to the dialog box from which you navigated to the Formula edit dialog box. The formula will appear in your original dialog box.

For an overview of how formulas may be used, see Writing and testing formulas.

To test a formula, see Testing Lotus Workflow formulas.

**Testing Lotus Workflow formulas**

You can test formulas used in process definitions created in the Lotus Workflow Architect. The formula test helps identify errors in more complex formulas.

To test formulas, the process must be activated and a job must be started on the process in question. The job must then run at least to the point where the formula is evaluated at runtime.

A special form in the application database allows you to test the formula. Any errors are displayed in that form.

See Writing Lotus Workflow formulas.
Setting up the test
Follow these steps.

1. In the application database, start a job based on the process that contains the formula to test.
2. Choose View - Design in the menu to view the design.
3. Open the Forms view and select the form (OS Formula Test).
4. Remove the parentheses ( ) from the title of the form and save the form. When you do this, the item OS FormulaTest is placed in the Create menu of the application database.
5. Save the form and close the Design view.

The OS FormulaTest form is now available in the Create menu.

Running the test
Follow these steps.

1. Select the main document from the binder in the job whose formula you want to test. Choosing a binder document from a current job allows the formula to inherit some of the document’s field values. Formulas are always evaluated on the main document of the binder.
2. In the menu, choose Create - OS FormulaTest. A Formula Test form displays.
3. Enter the formula you want to test in the field Formula Input.
4. Click the Test formula button. The formula may take a few moments to evaluate. If the formula is error-free, the results appear in the Output field. If the formula contains errors, they appear in the Error Text field.
5. Click Close when you’ve completed the test.

Note    Remember to remove the Create - OS Formula Test form from the Create menu when using the Application database in an operational environment.

Job properties delivered with Lotus Workflow
Job properties are used in formulas when designing a process. The output values of job properties can be known only during the actual running of a job.

A set of useful job properties is programmed into Lotus Workflow. You can find them in the Business Object library in the Lotus Workflow Architect.
The table below describes the job properties and tells how they’re used.

<table>
<thead>
<tr>
<th>Name</th>
<th>Use</th>
<th>Description</th>
<th>Output value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity due date</td>
<td>@JobProperty ([Activity Due Date])</td>
<td>Shows the activity due date.</td>
<td>Time-date</td>
</tr>
<tr>
<td>Activity Owner of Activity</td>
<td>@JobProperty ([Activity Owner of Activity]; “Name of the activity”)</td>
<td>Provides the name of the activity owner of a given activity. If the activity was worked on by more than one activity owner, the most recent activity owner is listed.</td>
<td>Text list</td>
</tr>
<tr>
<td>Activity Owner</td>
<td>@JobProperty ([Activity Owner])</td>
<td>Provides the name of the activity owner of the current activity. If the activity was worked on by more than one activity owner, the most recent activity owner is listed.</td>
<td>Text list</td>
</tr>
<tr>
<td>Activity Priority</td>
<td>@JobProperty ([Activity Priority])</td>
<td>Provides the activity priority of the current activity.</td>
<td>Text</td>
</tr>
<tr>
<td>Approval</td>
<td>@JobProperty ([Approval])</td>
<td>(This job property is supported only for upward compatibility from previous versions. It has the same function as decision. Use Decision instead.)</td>
<td>Text</td>
</tr>
<tr>
<td>Decision</td>
<td>@JobProperty ([Decision])</td>
<td>Shows the decision that was made by the activity owner of the preceding activity, if a decision was required from alternatives. This job property shouldn’t be used after binders have been joined, since the return value, in this case, is undefined. Use Decision of Activity once binders have been joined.</td>
<td>Text</td>
</tr>
<tr>
<td>Decision of Activity</td>
<td>@JobProperty ([Decision of Activity]; “Name of the activity”)</td>
<td>Shows the decision that was made by the activity owner of the specified activity.</td>
<td>Text</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Name</th>
<th>Use</th>
<th>Description</th>
<th>Output value</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Initiator</td>
<td>@JobProperty ([External Initiator])</td>
<td>This property may be available if a job was initiated by mail-based or form-based initiation. It returns the value of the field ExternalInitiatorOS. The value is copied from the document that was used to trigger the new job during initiation. We recommend using this field to indicate the person who has initiated the job externally.</td>
<td>Text list</td>
</tr>
<tr>
<td>Initiator</td>
<td>@JobProperty ([Initiator])</td>
<td>Shows the initiator of a job. The initiator is the person who completes the first activity in a job. In mail-based or form-based initiation, the initiator is the person who completes the first activity within the process design. This is not necessarily the person who send the mail or filled out the form. To find out who sent the mail or who created the document that triggered the job, look in the field MailInitiatorOS. In a subprocess, the process link settings determine whether the initiator is taken from the host process or the subprocess. If the initiator is taken from the subprocess, the initiator is the person who completes the first activity of the subprocess.</td>
<td>Text list</td>
</tr>
<tr>
<td>Job Due Date</td>
<td>@JobProperty ([Job Due Date])</td>
<td>Shows the job’s due date.</td>
<td>Time-date</td>
</tr>
<tr>
<td>Job Owner</td>
<td>@JobProperty ([Job Owner])</td>
<td>Shows a list of job owner(s).</td>
<td>Text list</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Name</th>
<th>Use</th>
<th>Description</th>
<th>Output value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Priority</td>
<td>@JobProperty ([Job Priority])</td>
<td>Shows the job priority.</td>
<td>Text</td>
</tr>
<tr>
<td>Number of Executions of Activity</td>
<td>@JobProperty ([Number of Executions of Activity]; “Name of the activity”)</td>
<td>Shows how often an activity was performed during a job. For example, on a conditional routing relation following an activity: @JobProperty ([Number of Executions of Activity]; “Review document”) &gt; 5 In this case, routing proceeds only when the activity “Review document” has been completed more than five times.</td>
<td>Number</td>
</tr>
<tr>
<td>Previous Activity Owner</td>
<td>@JobProperty ([Previous Activity Owner])</td>
<td>Shows the activity owner of the previous activity. This job property shouldn’t be used in the following situations because these cases are undefined:  - After binders have been joined.  - If the previous activity is an automated activity or is located in parallel to other manual activities.  - In the first activity.</td>
<td>Text</td>
</tr>
<tr>
<td>Tasks Done</td>
<td>@JobProperty ([Tasks Done])</td>
<td>Shows the completed tasks of the previous activity. This job property shouldn’t be used after binders have been joined, since the returned value is undefined.</td>
<td>Text list</td>
</tr>
</tbody>
</table>
Relations delivered with Lotus Workflow

The relations delivered with Lotus Workflow are summarized below. These documents are stored in the Organization Directory, and the formulas appear in the Business Object library of the Lotus Workflow Architect during design time.

<table>
<thead>
<tr>
<th>Relation name</th>
<th>Use</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity ID of Activity Name</td>
<td>@Relation([Activity ID of Activity Name]; “Process ID” + “Activity name”’)</td>
<td>For a given process ID and activity name, the related ID number of the activity is returned. This relation is used in the formula for the job property “Activity Owner of Activity”.</td>
</tr>
<tr>
<td>Out Of Office Status</td>
<td>@Relation([Out Of Office Status]; “Person’s name”)</td>
<td>Returns a person as “in” if this person doesn’t have an active out of office profile, or “out” if there is an active out of office profile.*</td>
</tr>
<tr>
<td>Manager of Employee</td>
<td>@Relation([Manager of Employee]; “Person’s name”)</td>
<td>Returns the manager of the department of a given person, if this has been defined in the department document of the Organization Directory.*</td>
</tr>
<tr>
<td>Member of Department</td>
<td>@Relation([Member of Department]; “Department name”)</td>
<td>Returns a list of members of a given department.*</td>
</tr>
</tbody>
</table>

* If the name address parameters of organization members have to be entered in canonicalized form, for example, don’t enter the following:

@Relation([Out Of Office Status]; “Peter Miller/Company name”)

Instead, enter the following:

@Relation([Out Of Office Status]; “CN=Peter Miller/O=Company name”)

**Note** All output values of the default relations return names in canonical format. If you want to convert names to an “abbreviated” format, or vice-versa, use the Lotus Notes function @Names.
Activating a process

A process under development can be saved at any time, even if it’s not completed. Saving process designs allows you to shut down your computer, for instance, after saving your work. Saving also allows more than one person to contribute to a process design (don’t work on them at the same time, however).

Activating a process is a different matter. Activating a process not only saves the process design to the Process Definition database and the Design Repertory database, it translates the process definition into a format that can be interpreted by the Lotus Workflow Engine.

To activate a process, its design must be complete and error-free. The best way to ascertain this is to run the Check Syntax feature on the process design. You can also simply attempt to activate the process, but doing so may allow flaws to remain in the design.

See the following topics:
Checking process syntax
Changing a process
Activating new or old processes

Checking process syntax

The Check Syntax feature tests a process design for errors before it’s activated.

Caution Although Check Syntax will reveal some common errors in process design, there is no guarantee that the process will actually run without error. For example, a process can be checked for endless (infinite) loops, but the syntax check can’t test conditional routing relations. These routing relations depend on conditions that are created during the actual running of a job.

Checking the process
Follow these steps to check the syntax of a process that is complete or nearly complete.

1. Save the process: Choose File - Save Process from the menu.
2. Choose Process - Check Syntax from the menu. The Check Process Syntax dialog box will display.
   • The Error Type box will display a green dot if no errors were found. A dialog box will also report Network syntax is OK. Close the dialog boxes; you’re ready to activate the process.
• Red dots (errors) in the Error Type box identify serious problems in the process structure that will prevent the process from being used in the runtime environment. If a process contains any errors, you won’t be able to activate it until you’ve corrected the errors. Common errors include forgetting to assign an activity owner or other required properties.

• Yellow dots (warnings) in the Error Type box identify minor problems in the process structure. Warnings won’t prevent you from activating the process and using it in the runtime environment. They do, however, point out unintended design faults, such as nodes that are unreachable because of incorrect or incomplete routing relations. (This means that some of the activities you designed into the process will never take place during the course of a job.)

Making corrections
You can correct some errors without closing the Check Process Syntax dialog box.

Follow these steps.

1. Left-click an object in the bottom right window of the dialog box. The object is highlighted in the process window. (You can drag the Check Process Syntax dialog box out of the way if needed.)

2. Right-click on the selected object.
   • Choose Basic or Advanced Properties, as appropriate, and assign the missing properties.
   • Click OK when you’re done.

3. In the Check Process Syntax dialog box, click the Check button to recheck the syntax.

4. Verify that your correction has been incorporated.

5. Repeat until the errors you can fix without closing the dialog box have been corrected. Click OK to close the dialog box.

6. Correct any other errors and recheck the syntax until all errors and warnings have been fixed.

7. When all errors and warnings have been fixed, choose File - Save Process.

You’re now ready to activate the process.
Changing a process

You can modify an existing process, even if it has already been activated and jobs are currently running under it. The changes can be minor — adding a description or adding to a task list, for example — or more extensive — adding or deleting an activity, or changing the conditions of a routing relation, for example.

All jobs currently in progress when you activate the revised process will continue to run under the old process. The old process is “frozen”: no new jobs can be initiated under it. All new jobs will be carried out under the new process.

Rerouting binders

It may be desirable for currently running jobs to be transferred to the revised process. The job owner can reroute the binders in jobs running under the older version. The procedure is covered in the Lotus Workflow User’s Guide under the topic Rerouting a binder.

Changing subprocesses

If the process you’re changing can be a subprocess in other processes, the subprocess will also be frozen — binders in jobs in the subprocess will continue to run under the older version.

Caution  Be careful when changing a subprocess design. It’s possible that a job was initiated based on a former version of a subprocess design. If this job didn’t reach the stage of the subprocess yet, the new version of the subprocess will be used with perhaps unexpected or unintended results.

Activating a new or old process

After a process has been designed and checked for syntax, it needs to be activated to be ready to use — that is, to become available to the Lotus Workflow Engine.

Note  The following settings are available only for processes that are created and activated for Lotus Notes platforms.

Follow these steps.

1.  Display the process in the process window of the Lotus Workflow Architect.
   •  If it finds no errors, the Activate Process to dialog box displays. Continue below at step 3.
   •  If it finds errors, the Check Process Syntax dialog box displays. See Checking process syntax for details.
3. Use the Browse button (...) to select the location of the Process Definition database. If a database is already listed in the box, make sure that it’s the correct location.
   - Click Add to current profile if you want to add this database to the current profile.
4. Click OK to activate the process.
   The process is now available for initiating jobs.

   **Note**  If the process cache is enabled (see Entering initiation settings in the Application Setup document in the Installation and Administration Guide), a recently modified process may not be available right away. See Updating the process cache manually.

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### Updating the process cache manually

The process cache is enabled in the application database to shorten the time it takes to start a new job. The names of processes in which jobs can be initiated, and the names of participants who can start the jobs, are cached; the cache is updated regularly according to a schedule that’s set up in the application database.

If you change a process definition and the process cache is enabled, you may not see the new version right away because the agent that updates the cache hasn’t run yet. You can, however, update the cache manually if you have the ACL role [Process Cache] and the application database isn’t local.

Follow these steps.

1. Open the application database.
2. Choose View - Administration - Cache from the menu.
3. Click on Update Process Cache.
   The process you want to use will now be available.
Generating and viewing reports

You can create a report of any process or job you are currently working on. The report lists all the process steps (activities, automated activities, and so on) along with their properties. You can select the level of detail you want, and you can specify how you want to view or store the report.

Reports are useful for analyzing processes and the jobs based on them. They can be used in quality control, ISO 9000 compliance, and so on.

Working with reports involves two operations: creating a report definition and then viewing the report. You can create a new report definition each time you generate a report, or you can save and reuse the report definitions you create. The viewing options include using an internal viewer provided in the Lotus Workflow Architect, a text editor, a spreadsheet, an HTML page, VRML format, or a format you design yourself.

Using the Report Assistant to create a report definition

The Report Assistant guides you through the steps to create a report definition. You can save and reuse report definitions for any process or job.

In the report definition, you can specify which of the process items you want to include, such as activity instance, activity, job, process, automated activity, end node, and so on. For each of these items, you can choose which properties you want to include in the report.

Follow these steps to use the Report Assistant.

1. Display a job or process using the Lotus Workflow Architect.
2. Choose Report - Assistant from the File menu.
3. The first of three dialog boxes will display. In this step, select which job or process items (objects) you want to include in the report. For each object you select, you will see a list of properties. Select the properties you want in the report.
   • By default, all objects and their properties are selected.
   • To show all properties for an object, click Select all. To show no properties for an object, click Deselect all. You can also click individual properties to select or deselect them.

   **Note** Notice that the object list for jobs includes both objects and their instances (for example, Activity Instance and Activity). Instances are steps in a job that have been completed or are in progress. If your report definition includes instances, those items will include information about what actually happened during the job — activity owners, mail recipients, and so on.
4. When you have chosen all of the objects and their properties, click Next.
5. The second dialog box will display. Select the choices you want:
   - Select the appearance of the report: table or list.
   - Select whether you want to print properties that have no value. If you select Yes, property names will appear even if no value has been assigned to an object. If you select No, only properties that have been assigned will be printed.
   - Click Property names if you want them included in the report.
   - Click A title... if you want your report to display a title based on the author, date, time, and so on.
6. Click Next.
7. The third dialog box will display.
   - Click Yes if you want to save the report definition. You can change the destination folder and/or filename if you want something other than the default (click the “… “ button to browse for a new location).
   - If you click No, a report definition file will be created in your Windows Temp folder.
8. Click Finish.

The Report dialog box will open offering you output options. See Viewing a report.

**Viewing a report**

Using a report definition (one supplied with Lotus Workflow or one that you have created using the Report Assistant), you can review any job or process you have access to.

If you have just created a report definition with the Report Assistant, the Report dialog box appears automatically and you can skip to step 2. Otherwise, follow these steps beginning at step 1.

1. To display the Report dialog box, choose Report - Produce from the File menu. The Report dialog box will display, showing options to select a definition file and an output method.
2. Select the definition file you will use to generate the report. If you have just used the Report Assistant, the definition file you just created will appear in the Definition file box. If you want to use a different file, click the “…” button to browse for it.
3. Select one of the Output options:

- Internal viewer. Your report displays on screen. You can’t edit or print this report, but it’s useful for testing your report definitions.

- File. Your report is saved to a file. Type in a new name if you want to. Use the “…” button if you want to browse a different folder.

- External viewer. Your report is opened in the program you specify. The Windows text editor (Notepad.exe) works well for reports you have specified with the Report Assistant.

When you choose this option, the report file is saved as a temporary file, typically in the Windows Temp folder on your hard drive. If you want the file saved permanently, you can move this file to another folder.

You can use other programs, such as a browser, to view the report. In that case, you may need to change the Temporary file extension to one that is compatible with the program you chose. For example, if you use Netscape Navigator, enter the appropriate file extension (htm or html) in the Temporary file extension box.

Job initiation by external events

Jobs can be initiated from within the application database by Notes users who have access to it. Workflow participants who can initiate jobs simply open the application database and click the New Job button.

Jobs can also be initiated by creating and saving a document. The document may be part of the application database itself, or it may be mailed to the application database. The mail can be set up on your organization’s Web site so that customers who know nothing about workflow can start jobs that are then managed from within the organization.

In both cases — form-based initiation and mail-based initiation — the first interaction with the user is an event external to the Lotus Workflow working environment. It isn’t a Workflow activity. Users are members of your organization who are authorized to begin jobs based on their settings on access control lists, or even anonymous people who simply fill out a form on your Web site and mail it to you.

Anonymous job initiation can be extremely powerful. A field representative, researcher, potential customer, etc., fills out certain fields that have been designed into a page on your Web site and clicks a Send button. The HTML code on the Web site identifies the process to be used, names the job, gives it a priority, and sends a document to the application database. Settings in the application database govern the creation of the
main document, place this document into a binder, and forward the binder to the potential activity owner(s) of the first activity. The result can be an order for goods to be shipped, a research report, or nearly anything else.

See the following topics:
Using the application Web UI
Form-based initiation
Fields used in form-based initiation
Mail-based initiation

**Using the application Web UI**

The application Web UI uses the World Wide Web standard to allow access to workflow applications. Any process that can be run in the application database can be started by the HTTP protocol and accessed via the World Wide Web or private networks using a Web browser.

The application Web UI facilitates the following types of processes:

- Jobs that run on corporate intranets or extranets.
- Jobs that run on the Internet.
- Jobs with clients having no Notes Desktop available.

**Jobs on the Internet**

Internet processes run via the Web, and security issues must be taken into consideration during process design and system configuration.

Anonymous users access your Web site without knowing anything about your workflow environment. Such users can initiate new jobs without ever knowing that they are workflow participants. Users may fill out a form and store it in your application database by clicking on a Submit button on your Web page. A process designed to start by mail-based initiation can be started by anonymous users. Form-based initiation is also possible.

**Jobs on corporate intranets and extranets**

Typical intranet and extranet processes, by contrast, can utilize nearly every process that can be performed with the Notes version of the Lotus Workflow software. Intranet applications can run completely inside an organization’s firewall, deal with confidential information, and usually run on fast LAN connections. Extranet applications have the advantage that they can run across two or more organizations that use intranets, which in turn use subprocesses.

Workflow participants using intranets and extranets can be made familiar with what workflow means and how Lotus Workflow is being used. For
example, this type of user can be trained to know about familiar Lotus Workflow terminology such as “job” and “claim.” Users in this group may regularly work with both Notes and Web browsers. A standard scenario would be people who work with a Notes client in the office and a Web browser when working at home or on the road.

**Form-based initiation**

Jobs can be started when a document with designated key fields is mailed to or created in the application database.

Form-based initiation is practical when the user creating or sending this document into the application database is aware of the process that will be initiated. The process, job name, and priority can be entered directly. However, if the process name is built into the form, simply creating a document based on the form will begin the job.

Follow these steps.

1. Open the application database.
2. Choose View - Design from the menu. The Domino Designer launches and a design navigator appears.
3. Click on the Forms view. In the right panel, open the (OS Form-based Initiation Template).
4. Highlight and copy the fields located in this template; then close the template.
5. Choose Create - Design - Form to create a new form.
6. Paste the fields into the new form.
   See Fields used in form-based initiation for further information regarding the fields you paste into the new form.
7. Add your own form design and save the form.
   This form can be mailed in to the application database to start jobs.

**Making the form available to users**

If the form is available to users, each time a document is created based on the form, it will start a new job.

Follow these steps.

1. Open the form and choose Design - Form Properties from the menu.
2. Click Include in menu: Create menu to put a check mark in the box.
3. Save and close the form.

The name of the form now appears in the application database menu under Create.
Now, when a user creates a document based on this form in the application database, the document is listed in the views Administration - All by Form and All Jobs - By Activity Status. The OS Lotus Workflow Backgrounder agent checks documents in this view and if the field InitiateOS contains “yes,” it starts a job based on the settings listed there. The agent runs every half hour by default.

**Fields used in form-based initiation**

Any form containing the fields in the form (OS Form-based Initiation Template) can be used to start a job. The Lotus Workflow Backgrounder agent searches documents in the application database. If it finds the field InitiateOS in a document, and if the field isn’t empty, the document will be used to start a job.

The following fields are used in form-based initiation. Formulas can’t be used in any of these fields.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>NewProcessNameOS</td>
<td>Determines which process should be started by the form.</td>
</tr>
<tr>
<td>NewJobNameOS</td>
<td>Determines the name of the job started by the form.</td>
</tr>
<tr>
<td>NewJobPriorityOS</td>
<td>Determines the job priority.</td>
</tr>
<tr>
<td>MailStatusOS</td>
<td>If the field is empty (“””) or contains “2”, the document becomes the main document in the binder.</td>
</tr>
<tr>
<td>A button in the form displays a keyword list.</td>
<td>If the field contains “3”, the document will be deleted.</td>
</tr>
<tr>
<td>InitiateOS</td>
<td>If the field is empty, or contains “no”, the document won’t be used to start a job.</td>
</tr>
<tr>
<td></td>
<td>If the field contains “Yes”, the document will start a job based on the other fields in this table.</td>
</tr>
<tr>
<td>ExternalInitiatorOS</td>
<td>You may optionally use this field to specify the person’s name that is responsible for initiating this new job. Within the process design, you can refer to this field using the Job Property “External Initiator”. We recommend that you use a canonicalized user name.</td>
</tr>
</tbody>
</table>

Documents that have a “From” field that isn’t empty, a FolderIDOS field that is empty or missing, and don’t have any of the Lotus Workflow forms (OS Audit Form, OS Audit Merge, etc.) will be used to start mail-based initiation.
Mail-based initiation

Any mail that is sent to the application database can initiate a job, regardless of who the sender is. The mail is a trigger that creates a new binder and routes it to the first activity.

Mail-based initiation applies to any document mailed to the database that has the following characteristics:

- It contains a From field.
- It isn’t part of a binder (that is, the document doesn’t contain the field FolderIDOS, or this field is empty).
- It doesn’t contain any Lotus Workflow forms (OS Audit Form, OS Audit Merge, etc.).

Mail-based initiation must also meet these conditions:

- The application must be specified as a mail-in database in the Domino Directory.
- Mail-based initiation must be enabled in the Application Setup document, and settings for the process name, job priority, and job name must be given. All values can be specified by macro formulas. These system settings are essential to guarantee correct initiation.
- The setting specified in the process name field in the Application Setup document must match the name of a startable process.

Mail-based initiation is especially practical for anonymous users, who can initiate a job by mail without any knowledge of Lotus Workflow. Because formulas are used to evaluate the settings, the mail can have a standard format (as, for instance, on an Internet or intranet Web page).

**Tip** To prevent a document mailed to an application database from initiating a new job, include the field name NoMailInitOS in the mail form and make sure it has the value “Yes.”
Appendix A
Glossary

activity
A unit of work representing one of the steps in a process or one of the steps required to work on a job. Activities are represented as nodes in a process diagram. A binder, containing the documents necessary to complete a job, is routed from activity to activity.

activity instance
An activity that has been completed or is in progress. This term is used in the Lotus Workflow Viewer to distinguish information about an activity’s design from its actual outcomes during the course of a job. For example, information about an activity may include several potential activity owners. Information about the activity instance includes the name of the person who claimed the activity.

activity owner
The person who claims an activity and is responsible for its completion. The activity owner may also appoint a team to help with the activity or reassign the activity to someone else (if this is permitted in the process definition).

activity status
The description of what is happening in an activity. The status may be any of the following:

  unassigned — The binder has not yet been routed to the activity.
  new (ready to claim) — An activity has been assigned to potential activity owner(s) and the binder for the activity has appeared in their inboxes. An activity is assigned only when the binder has been routed to it.
  individual — The activity has only one potential activity owner.
  shared — The activity has more than one potential activity owner.
  in progress (claimed) — The activity has been claimed and is being worked on.
  automated — The activity is performed without intervention by an activity owner, either as soon as the binder is routed to it, or when a scheduled agent activates it.
overdue — The activity has a deadline that has been missed. The activity may or may not have been claimed.

postponed — The activity has been stopped until a specific date or until it is reactivated by the activity owner or the job owner.

suspended — The activity has been stopped until it is reactivated.

reassigned — The activity owner has reassigned the activity to someone else.

completed — The activity has been finished. If the job is not completed, the binder is routed to the next activity, if there is one.

application
A Notes database containing both data and programming (in LotusScript) for displaying and manipulating the data. Also called an application database.

application database
In Lotus Workflow, a Notes database containing the jobs, along with the binders and documents needed to complete the jobs, plus information about activity status and deadlines. The database also contains the forms and views defined for displaying job information to workflow participants. These forms and views can be customized to suit your organization’s needs. An organization may have more than one application database dedicated to a particular purpose (purchasing, IS, customer service, order entry, etc.).

application database owner
The person or group that manages the application database. The application database owner may modify or design the forms used in the application database and manage any relevant settings for access, replication, and so on.

Archive database
An optional Notes database that provides Lotus Workflow administrators a convenient place to review information and statistics about jobs that have been completed. Archiving of jobs is usually automated, and Workflow participants don’t need to have direct access to the database.

audit trail
A record of the actions taken during the course of a job. The audit trail contains information such as the name of the job owner and each activity owner, reassignments, and so on. The process designer or Workflow administrator can use the audit trail to compare a process design to actual events in a job, in order to improve the design. The audit trail may be stored in the application database or in a separate database.
Audit Trail database
An optional Notes database that records the actions taken during the course of a job. It is usually set up within Lotus Workflow as an automated mail-in database, and Workflow participants don’t need direct access to it.

automated activity
An activity that takes place without any user intervention. Automated activities can send mail, run Lotus Notes agents, launch external applications on the server, or start subprocesses on other Lotus Workflow servers.

binder
A virtual container for documents that proceed through a job. It is routed from one activity to the next until the job is completed. A binder must contain a cover document and a main document. It may also contain other documents needed for the completion of the activity.

binder status
The description of what is happening to a binder as it moves from activity to activity. The binder status may be any of the following:

  assigned (ready to claim) — The binder has been routed to an activity that has not yet been claimed. The binder appears in the personal activities lists of the potential activity owner(s). In earlier versions of Lotus Workflow, this was sometimes called “new.”

  claimed — The binder is in an activity that has been claimed and is in progress.

  ready to route — The binder is in a completed activity and is waiting for an agent to route it to the next activity.

  ready to submit — The binder is in a job in a host process and is awaiting an agent to route it via e-mail to a job in a subprocess in a different database.

  ready to return — The binder is in a job in a subprocess and is awaiting an agent to route it via e-mail back to the job in the host process in a different database.

  submitted — The binder is in a job segment in a subprocess. This status is shown in the job in the host process.

  returned — The binder has been sent back to a job in the host process from a job segment in a subprocess. A copy of the binder remains in the subprocess’s activity as a backup until the job is completed.

  waiting for join — In an earlier activity, the binder was copied and routed to two or more activities. A copy has been routed from one of those activities to the current activity and is now ready to be joined with the other copy(ies) when their activities are completed.
**business object**
Any of the basic building blocks of Lotus Workflow — the elements that have been created and saved in the Workflow databases. These include activities, automated activities, processes, formulas, entries in the Organization Directory, and the forms stored in the application database(s).

**Business Objects Library**
An area in the Lotus Workflow Architect that provides access to all the design elements in the Design Repository database and entries in the Organization Directory database. The library provides the process designer quick access to reusable elements that can be used as building blocks in creating new processes.

**claim, claiming**
To take responsibility for completing an activity. A potential activity owner may claim the binder for an activity when it appears in his or her activities list.

**client-based routing**
Routing that takes place on the user’s local (client) computer rather than on the server. Routing is immediate and takes place as soon as the activity owner indicates that the activity is complete. If the activity is incomplete (a task not checked off or a manual routing option not selected, for instance), the activity owner is notified. Routing problems are also reported to the activity owner. The activity owner can try to solve the routing problem or forward the problem to another responsible person. Compare server-based routing.

**cluster**
A collection of activities within a job or process design. A cluster is one of the graphic devices in a process diagram displayed in the Lotus Workflow Architect or Viewer. With several activities “collapsed” into one cluster, the process diagram is easier to read.

**connector**
An arrow that connects activities in a process diagram. The connector represents information about the routing conditions in a process. Connectors may appear as straight lines, or they may have angles. They have the same function regardless of their appearance.

**cover document**
The document containing the basic instructions and data for accomplishing the work in the current activity. The cover document may also contain a task list for the activity. Every binder must have a cover document, and every activity must have a binder.
**decision point**
A diamond-shaped graphical element in a process diagram, containing information about routing relationships. The routing conditions can be programmed into the decision point and the results evaluated in the routing relations. This can save routing time and allow for code reuse.

**Design Repository database**
A Notes database for storing processes and their elements, as well as related formulas. This database is accessed by the Lotus Workflow Architect as a source of process design elements that can be reused in creating new processes. In conjunction with the Organization Directory database, it forms a part of the Workflow Business Objects Library. Manual changes can’t be made in this database. It contains cryptically coded information that is used internally by the Lotus Workflow Architect.

**document status**
The description of restrictions on document access.
- **reserved** — A document in the binder has been reserved by the activity owner of a shared (team) activity. Only the activity owner can edit a reserved document. When the activity is completed, all reservations are canceled.

**Domino.Doc binder**
A collection of documents checked out from a Domino.Doc file cabinet. Domino.Doc binders may be included in a Lotus Workflow binder and be used in completing an activity.

**exception handling**
A reporting system for informing job owners of variances in the routing of a binder through the activities in a job. Exceptions may include reassignments, rerouting, and job interruptions such as canceling the job, or suspending or postponing an activity.

**form-based initiation**
A method of starting a job by creating and saving a document in the application database. An agent in the document form creates a binder and sends it to the first activity of the job. In form-based and mail-based initiation, the first user action — creating a document — isn’t an “activity” within a Lotus Workflow process.
freeze, frozen
To prevent new jobs from being initiated in an outdated process. When an existing process design has been revised and replaced in the Process Definition database, the old design is frozen, and no new jobs can be initiated using the old design. To avoid inconsistencies, currently running jobs are allowed to continue under the older process design unless the job owner reroutes their binder(s) to the new process.

host process
A process that contains links to one or more subprocesses. A subprocess is represented in a process diagram as a process link. Subprocesses may run in the same application database, a different database, or even on another server.

immediate routing
See client-based routing.

initiate, initiation
To start a job in the application database. Typically, the person who initiates a job (1) claims the first activity by choosing New Job in the application database, (2) receives the first activity as mail, or (3) creates a new document based on a form in the application database.

initiator
The person who completes the first activity of a job. Each process design specifies the people or groups in your organization that can initiate a job based on the process.

instance
A term used in the Lotus Workflow Viewer to indicate a job step or routing relation that has been completed or is in progress. Examples: activity instance, automated activity instance, routing relation instance. In the Lotus Workflow Viewer, the nodes in the diagram change color to indicate an instance. (In the default style, the color changes from light green to dark green. The colors and shapes of the nodes may be customized, however.)

job
A single implementation of a process in order to achieve a specific goal. For example, a job may be started, using the process for purchase order requests, to obtain a purchase order for a new computer for a particular employee.
**job owner**
The person or group that is responsible for the overall completion of a job. The job owner is notified automatically if a job is late, or if an activity hasn’t been claimed on time. The job owner can also intervene in a job in several ways: claiming or completing activities, even when not listed as a potential activity owner; rerouting a binder to a different activity in the same job or another job; canceling a job; and so on.

**job property**
Any of a set of formulas that become part of the process definition. These formulas indicate the job owner, initiator, decisions to be made, and so on, which are evaluated when a job is started. For example, a job property can specify that people in a certain department can initiate a job. Once a job is initiated, the property is evaluated to the name of the person who actually initiated the job.

**job report**
A listing, which Workflow participants can create from the Lotus Workflow Viewer, of job properties. The report is customizable to show selected properties. The format of the report can also be selected — on screen, in a spreadsheet application, as an HTML page, and so on.

**job window**
A window in the Lotus Workflow Viewer that allows you to view information about a job that is in progress: a process diagram showing all the activities, with color differences showing which activities are in progress or have been completed; property dialog boxes for the process, the job, the activities, and other elements in the job; an animated view of the job’s progress so far; and a report showing properties of the job and its underlying process design.

**join**
To merge two or more copies of a binder. As part of the process design, a binder may be copied and sent to multiple activities in a parallel path. When the copies arrive at a single subsequent activity, they must be joined so that there is one cover document and one main document. Other versions of the documents may be discarded or retained in the binder.

**loop**
A path in a job that passes through an activity more than once. This can happen when the routing of the binder depends on a decision or other outcome in an activity. For example, an activity may involve a manager’s approval of a document. If the manager disapproves, the binder may be sent back to an earlier activity for further work.
Lotus Workflow Architect
A Windows program that the process designer uses to create processes. The Architect provides a graphical interface that allows the process designer to drag Workflow design elements into the work area, connect them with routing information, and assign properties to them. Although the Architect runs independently from Lotus Notes, it saves its information in Notes databases dedicated to Lotus Workflow (the Design Repository database and the Process Definition database).

Lotus Workflow Engine
A collection of three Lotus Notes databases that contain the data, programming, and user interface for a complete Workflow solution.

- The Organization Directory database stores information about your organization’s people and their departments and roles in the organization, along with any other resources needed.
- The Process Definition database stores information about the Workflow processes that have been designed for your organization, on which jobs are based.

The application database contains the binders of documents needed to complete jobs, along with information about activity status and deadlines. It also contains the forms and views designed for specific kinds of jobs. A Lotus Workflow system may have more than one application database dedicated to particular kinds of jobs.

Lotus Workflow Viewer
A Windows program that Workflow participants may use to display a graphical representation of Workflow process designs and currently running jobs. Properties can be viewed for processes, jobs, activities, routing relationships, and other elements in the Workflow environment.

mail-based initiation
A method of starting a job automatically by creating a document and mailing it to the application database (which must be set up as a mail-in database). An agent in the application database uses information in the e-mail message to create a binder and route it to the first activity. In form-based and mail-based initiation, the first user action — creating a document — isn’t an “activity” within a Lotus Workflow process.

main document
The document to be worked on in an activity. As its binder is routed from activity to activity, the main document may be based on different forms. Each binder may contain only one main document.
mail inquiry
An e-mail message sent by the activity owner or job owner to get information from another person about an activity. Sending an e-mail inquiry doesn’t affect routing for the job.

node
One of the graphical elements in a process diagram as displayed in the Lotus Workflow Architect or Lotus Workflow Viewer: a Start or End node, an activity, an automated activity, a process link, or a cluster.

Organization Directory database
A Notes database containing information about the structure of your organization that is relevant to Workflow. Its basic framework includes organization units — the people, departments, workgroups, and roles in your organization — along with formulas expressing relationships among them. The Organization Directory database may also contain information about resources needed for working on jobs, such as the Lotus Workflow Viewer.

Organization Directory database owner
The person or group that has manager access to the Organization Directory database and can create and edit documents in it, as well as create out of office profiles for all organization units. The Organization Directory owner is added to the configuration document of the Organization Directory database.

organization unit
An entry in the Organization Directory database. Organization units are the people and groups that are responsible for completing activities and jobs. Organization units include the following categories: person, department, role, and workgroup.

person — Every individual who will take part in working on activities or jobs.

department — A hierarchical unit in your organization. Departments may have any number of subsidiary departments, but only one parent department.

role — The positions or responsibilities within your organization, such as “order entry clerk,” “marketing manager,” “travel advisor,” “sales associate,” and so on. These roles can be very important in the Workflow environment because activities are often assigned to roles rather than to individuals. Only persons can belong to roles.

workgroup — A group dedicated to a particular task or set of tasks. It’s the most flexible of the organization units and can include both persons and other workgroups.
**out of office profile**
A document in the Organization Directory database that is created for a person who will be absent (or otherwise unavailable) for a day or longer. The information in the document includes the dates of the absence and may also include the names of any substitutes to whom activities can be assigned during the absence.

**potential activity owner**
A person or group that can claim an activity. The properties for each activity, as specified in the process definition, determine who can claim an activity. Usually potential activity owners are specified by role or workgroup in an organization. Maintaining the process design is easier when potential activity owners are not specified as individuals in the organization.

**potential job owner**
A person or group that may have overall responsibility for a job. Potential job owners are specified in the process definition. The potential job owner may be specified by formula — for instance, as the manager of the job’s initiator. In that case, the actual job owner’s identity isn’t known until the first activity is completed.

**process**
The systematic definition of a set of activities that are necessary for completing a job or other kind of work. The process definition includes the content of the documents that are part of the job, the people who have overall responsibility for completing the job, the people who can work on each activity, any other resources needed, the order in which the work is to be done, and usually deadlines.

**process definition**
The set of properties assigned to a process and each of the activities and other business objects contained in the process.

**Process Definition database**
A Lotus Notes database that stores all process definitions. As Workflow participants claim and work on activities, they access the Process Definition database indirectly through the application database. The Process Definition database is not ordinarily accessed directly.

**process design**
The properties assigned to a process and its business objects, along with the graphical representation created in the Lotus Workflow Architect and viewable in the Lotus Workflow Viewer.
**process designer**  
The person or group responsible for creating and specifying processes. The process designer uses the Lotus Workflow Architect to lay out process diagrams and assign properties to the business objects that represent the steps in the process.

**process diagram**  
The visible representation of a process or job. It looks like a flow diagram, with activities and other events shown by boxes and routing relationships shown by arrows between the boxes. The process designer creates the diagram in the Lotus Workflow Architect and assigns properties to the process and to each element in the diagram.

**process link**  
An element in a process design that links a host process to a subprocess. Process link properties can be set to specify the application database the subprocess will run in and whether the host process or subprocess will control certain shared settings such as initiator, job owner, audit trail, and join.

**process owner**  
Usually, the process designer. The process owner is responsible for the overall design of workflow processes in the organization.

**process report**  
A listing of process properties, which Workflow participants can create from the Lotus Workflow Viewer and the process designer can create from the Lotus Workflow Architect. The report is customizable to show selected properties. The format of the report can also be selected — on screen, in a spreadsheet application, as an HTML page, and so on.

**process window**  
1. A window in the Lotus Workflow Architect where processes are defined by the process designer.

2. A window in the Lotus Workflow Viewer that allows Workflow participants to view information about a process design: a process diagram showing all the activities and other business objects; property dialog boxes for the process, the activities, and other elements in the job; and a report showing properties of the job and its underlying process design.

**reader**  
A person or group with reader access to documents in a job. Depending on the process definition, readers may have access to the documents in the binder for a single activity or for all activities in a job.
reassignment
The act of assigning an activity to a different person from the one who claimed the activity. Depending on the process definition, job owners and activity owners may reassign activities.

relations
Customized formulas that connect organization units (people and groups) to each other. Relations such as “manager of initiator” allow flexible assignment of activities. They can also make maintenance of processes easier than if actual names are used, since changes in an organization’s personnel won’t require revising the processes.

report definition
A document that defines the content and format of a report created in the Lotus Workflow Architect or Lotus Workflow Viewer. Report definitions are usually created using the Report Assistant. They can be temporary (and deleted by Windows as it maintains its temp directory) or saved for future reuse.

reroute
To send a binder to an activity that is outside the normal routing path. The job owner can reroute a binder to a different process or to an activity in the same process in which the job is running. The typical use of rerouting is to send a binder to an activity in a newer version of the same process. Rerouting requires a thorough understanding of the processes involved and should be applied with caution.

reserve
To protect a document from editing. Activity owners and team members can reserve a document; the reservation expires when the activity is completed.

resource
As used in the Lotus Workflow system, a program (server-based or client-based), mail address, or application. Resources are defined by resource documents in the Organization Directory database.

route
To forward a binder to the next activity in a job. In Lotus Workflow, routing usually is done automatically. When an activity is completed and closed, the process definition for the job determines where to send the binder.
**routing relation**
The routing conditions between any two steps in a process (such as activities, automated activities, process links, and so on). The routing relation is set in the properties dialog box that is associated with the connector in a process diagram. Five routing conditions can be set on the connector that is leaving an activity:

- always (the default)
- exclusive (only one of several paths may be followed, selected by the activity owner)
- multiple choice (zero, one, or more paths may be followed, selected by the activity owner)
- conditional (determined by decisions or information generated in the activity)
- else (followed when no other path is valid or has been chosen).

**Sametime**
A Lotus product that for simultaneous communication (chats) and application sharing. If installed and activated, Sametime allows workflow participants and process designers to communicate anywhere a list of participants is available.

**scheduled routing**
See server-based routing.

**server-based routing**
Routing that takes place on the server rather than on a user’s local computer. Server-based routing is done according to a scheduled agent. If the activity is incomplete (a task not checked off or a manual routing option not selected, for instance), the activity owner is notified. Routing problems are reported to the job owner. Compare client-based routing.

**skin**
A set of design elements for an application. These design elements are separate from the code that implements the application’s features. An application developer can use skins to change the look and feel of an application without changing the way it works.

**start node**
The beginning node of a process diagram. Processes may have only one start node.
**subprocess**
A process that is contained within another process by means of a process link. The subprocess may be in the same application or a different application, and it may be on the same server or a different server. Subprocesses are a convenient way to link process designs and to provide flexibility and independence between processes. The process link becomes a business object and a reusable building block that can be used in any other process.

**substitute**
A person or group that assumes responsibility in an activity for a person who is absent or for a group in which all members are absent. Substitution rules are stored in the Organization Directory database. For individuals, an out of office profile must be completed designating at least one substitute. (In previous versions of Lotus's Workflow products, this was called surrogate.)

**task**
A smaller work assignment within an activity. Up to seven tasks, optional or required, may be defined in the activity properties. Resources such as forms or programs can be assigned to tasks. These resources are available by clicking a button in the cover document.

**team**
One or more persons or groups assigned to assist with an activity. Team members can reserve and edit documents and may be authorized to add or delete documents in a binder. They can’t claim or complete an activity, and they can’t change the team membership. Teams can be specified in the process definition or by the activity owner.

**team workspace**
In the application database, a view that shows all binders for which you are a team member, or for which you are the activity owner and other team members have been assigned.

**workflow**
An organized way of creating and tracking work assignments and routing them to the people and groups that need to work on them. In Lotus Workflow, jobs are designed as processes using a graphical tool. Job activities are defined according to business rules and routed to participants based on their positions or functional roles in the organization.
Appendix B  
Troubleshooting Guide  

Following are some questions and answers about certain issues that may arise in installing and using Lotus Workflow. These items may apply to workflow participants, process designers, database owners, and administrators.

General

What happens if the Notes session is interrupted?
If your Notes session is interrupted abnormally (i.e., caused by a power failure) during one of the following procedures, take the corresponding action recommended here.

- **Consolidate Binders**
  
  **Problem:** Binders do not all have the same status.
  
  **What to do:** The agent Consolidate Binder is available to Job Owners in the menu of binder documents (Actions - Consolidate Binder). It changes all binder documents according to the settings in the activity.
  
  **Caution**  To avoid inconsistencies, don’t use this agent if the main document has the status “Waiting for join.” Don’t use the action Manual Join after you have used Consolidate Binder.

- **Subprocesses**
  
  **Problem:** If a binder is routed to a subprocess that wasn’t activated in the Process Definition database, the binder can’t be transferred and stops with the status “Submitted.”
  
  **What to do:** Ensure that the missing process is activated in the Process Definition database. To continue the job, the job owner has to reroute the binder to the previous activity and then click the Save & Complete button.

What should I do if the mail server isn’t available?
If the mail server isn’t available, certain actions won’t work.

- **Mail inquiry**
  
  **Problem:** A mail inquiry can’t be sent.
  
  **What to do:** Try sending the mail inquiry again after your mail server is available again.
Suspend, Postpone, Request to cancel Job

**Problem:** The job owner can’t be informed via e-mail about a suspend, postpone or request to cancel job request. The procedure might be interrupted.

**What to do:** In this case, leave the main document without saving your changes. If the changes have been saved accidentally, binder documents may have a different status. Use the Reactivate Activity action to repair the binder.

**Why can’t an agent open the Process Definition or Organization Directory database?**

**Problem:** An agent can’t open a required database.

**What to do:** Open the Application Setup document and check the settings for both databases. All of the Lotus Workflow Engine databases (application, Organization Directory, and Process Definition) have to be located either on the same server or on a local file system.

If you’re using replicas, the application database always refers to the databases in the same location. If multiple replicas exist in one location, the first replica found is used.

**Why can’t I find a process in the Process Definition database in which it was created?**

When you open an existing process, the Lotus Workflow Architect automatically switches to the Design Repository in which the process is located. This database becomes the current Design Repository. Other open processes will also be saved in this current Design Repository, although they may have originally been saved in a different database.

**Problem:** The process you’re searching for isn’t located in the Design Repository where the process was first created.

**What to do:** Locate the process, open the desired Design Repository database, and save the process again. Make sure no other processes are open from other Design Repositories.

**Why doesn’t the database dialog box list of available servers display any entries?**

**Problem:** The Notes.ini file can’t be found, or the Notes.ini file contains an error.

**What to do:** Place the Notes.ini file in the correct directory, and check the contents of the Notes.ini file.
Why doesn’t the Help database open?

**Problem:** The Process Designer’s Guide database doesn’t open when you click on Help - Search or Help - Contents in the Lotus Workflow Architect.

The views in the Help database have probably not been assigned an alias.

**What to do:** Follow these steps to assign aliases:

- Open the Lotus Workflow Help database.
- Choose View - Design from the menu.
- Select Views from the navigator. A list of views appears.
- Open the view a. Contents.
- Open the properties box for this view, and enter Contents in the Alias field.
- Close the view and save your changes.
- From the list of views, open the Search view, and enter Find in the Alias field.

Now the correct view of the Help database will open when you use either the command Help - Contents or Help - Search.

Organization Directory database

**Why can’t I place a new workgroup into a hierarchy?**

**Problem:** You want to place a workgroup into a hierarchy, but it doesn’t seem to work.

**What to do:** You can’t place a workgroup into a hierarchy. This is only possible with departments.

**Why do I get error messages while creating organization units?**

**Problem:** Error messages occur if you perform the following series of actions when you’re creating any of the organization units documents in the Organization Directory database:

- You are currently in an organization unit document.
- You open the Domino Directory (i.e., to check the name of the organization unit).
- You then return to the document and select Save and Create new....

Error messages can result, or new documents may be created in the Domino Directory. This happens because the Organization Directory and the Domino Directory use the same forms.

**What to do:** Close all windows of the Domino Directory before opening organization unit documents.
Why does the message “No such entry ... can be found in the Organization Directory” appear?

Problem: When routing binders over several databases, you receive the error message “No such entry ... can be found in the Organization Directory.”

What to do: In order to route binders over several databases, make sure you enter the name of the resource in the Application Setup document.

Application database

How can I avoid replication problems?
The Lotus Workflow Engine is completely integrated in Lotus Notes; therefore, replication is fully supported. This section describes four important factors you should take into account when you replicate Lotus Workflow databases.

• **Server-to-server replication.** You can set up server-to-server replication as usual. To allow access to all documents, grant the role [Process Server] to each server involved. The application, Organization Directory, and Process Definition databases used at each replication site have to be located on the same server. In order to set up a multiple-server environment, they have to be replicated into each of the involved servers.

• **Mobile management (client-server replication).** For client-server replication, the application, Organization Directory, and Process Definition databases must be available locally. If you have designer or manager access, be sure not to run any background agents manually on your local databases. When working on local copies of the Lotus Workflow databases, users should not claim any activities that could also be claimed by other workflow participants (these are listed as Shared Activities in the user’s My Activities view). Otherwise, replication conflicts are likely to occur. It’s safe to claim any individual activities, or to work and complete activities that are already in progress. If you are taking part in a team activity, reserve documents on the server before replicating to your local client in order to prevent replication conflicts in binder documents. If you’re a job owner, all actions such as Reroute should be done on the server directly.

• **Application Setup document.** As the same Application Setup document is used independently of the server the application database is located on, the paths to the Organization Directory and Process Definition databases either have to be specified by using replica IDs or all sites have to use the same paths.
• **Replication and process design.** When designing processes, keep in mind that each activity should only be assigned to potential activity owners who are using the same server. Otherwise, it is likely that two different persons may claim a binder on different servers, and the same activity will be processed twice. If this happens, and the binder is replicated, a replication conflict will occur for each binder document.

It’s crucial to consider replication issues when designing processes and managing organizational structures. Only assign users who work on the same server as potential activity owners of one activity or as team members. If several job owners are assigned to a job, they should all work on the same server or contact each other before simultaneously editing binder documents.

**Note**  It’s important that the sample databases provided by Lotus Workflow not be used in your operational environment. The replica IDs associated with these samples are the same on all copies of the software. Using the sample databases as operational databases can therefore lead to accidental replications. Therefore it is strongly recommended that you create new databases from the Lotus Workflow database templates.

**Why are there problems with time management and archiving?**

**Problems:** Certain problems may occur with time management and archiving in the Application database, such as the following:

• Job owners and activity owners are not informed by mail about due dates.
• Postponed activities are not reactivated on the rescheduled date.
• Documents are not archived according to schedule.

**What to do:** These problems may be caused by one of several reasons. Check the following points carefully:

• The OS Administration and OS Time Management background agents must be activated in the application database. Be sure to follow the instructions carefully for setting up the application database, especially for enabling agents.
• In the Application Setup document, the archive procedure must be enabled.
• If some procedures only run once a day, such as audit trail or archive procedures, certain actions may be delayed until the procedure runs again. For example, imagine a job is completed and is supposed to be archived on the same day it is completed. If the archive procedure runs at 8 a.m., but the job was completed at 2 p.m., the job won’t be archived until the next day, when the archive procedure is run.
LotusScript code can’t handle certain time settings in the operating system of the server. If you are experiencing problems with time management, you must select a style of date that is compatible with LotusScript. For example, we have experienced problems with this date style for Windows NT: dd-MMM-yy. If you use this date format, features such as time management may not function properly. You must change this format to another style, such as MM/DD/YY.

Why can’t I start a new job?
There are several reasons why you cannot start a job in the Application database. Some of these reasons are related to the application database, and some relate to the process design.

Application database:

• The option “Cache list of available processes” is enabled in the Application Setup document, and the cache is not updated. If you have the ACL role [Process Cache], you can update the cache. Choose Administration - Cache and click Update Process Cache from the action bar.
  A list appears of all available processes and their initiators, and any error messages that occurred during evaluation.

• The process may have been activated in a different Process Definition database from the one currently used by the application database. Check the database settings in the Application Setup document.

• The Application Setup document may allow only certain processes to be initiated. Check the Initiation Settings section in the Application Setup document.

• If the error message “Form not available” appears during initiation, the form specified for the Main document is not available in this application database. Either select a different form in the Lotus Workflow Architect and reactivate the process, or paste the missing form into your application and select the action New Job again.

Lotus Workflow Architect:

• Check if you are one of the potential activity owners of the first activity in the process design. This is a Basic Process Property.

• The process may have been saved but not activated. Activate the process in the Lotus Workflow Architect.

• Participants of the first activity who are specified by formulas can be evaluated only in mail-based initiation. Enter an organization unit as the potential activity owner of the first activity in the process.
• One or more of the potential activity owners of the first activity may not be evaluated properly — in this case the process cannot be initiated at all. If error messages appear regarding units that can’t be found within the Organization Directory, one or more of the participants specified at the first activity or at the process level can’t be evaluated correctly. Resolve these conflicts in the process definition or in the Organization Directory.

**Why doesn’t my newly designed process appear when I try to start a new job?**

**Problem:** When you design a process in the Lotus Workflow Architect and activate it in the correct Process Definition database, and the Process cache is enabled, the name of the process is not listed in the New Job dialog in the application database.

**Reason:** The process cache agent must run after a process is activated in order to make it appear in the New Jobs dialog box. The cache updates every hour according to the schedule for this agent.

**What to do:** If you have the ACL role [Process Cache] you can open the view Administration - Cache and update the cache. Otherwise, you must wait until the process cache updates with the new process definition.

**Why doesn’t the binder arrive at the next activity?**

When you’ve finished an activity and select the action Save & Complete, the binder is normally sent on to the next activity. However, if the binder doesn’t arrive at the next activity, the normal routing procedure may change. The status of the binder provides the answer to what the problem is:

• If you’re using scheduled (server-based) routing, and the binder you’ve just completed has the status “Ready to route,” it will be sent on to the next activity according to a predefined schedule. If the following process step is a subprocess, the activity is automatically set to scheduled routing.

• If a task or decision is required for the activity, you must complete this before the binder can be sent on.

• Problems may arise due to mistakes in the process design. If such a problem occurs, an error message is displayed or automatically forwarded to the responsible person, and the binder has the status “A routing error occurred.” Refer to the error message to resolve the problem. Once the problem is solved, you can start the job again.

• If the binder was copied and processed by more than one activity owner at a time, the binder may have the status “Waiting for join.” In this case, it will be sent on to the next activity according to a...
predefined schedule. A background agent must check if the binder needs to be merged with other copies of the binder.

**Note** The system has to perform this check, even if no other copy exists. If a deadlock exists, the join settings won’t work automatically, and you’ll have to join the binders together manually.

- If the binder has the status “Ready to route” or “Submitted,” it may be waiting for a scheduled agent to send it to a subprocess or back to the host process.
- If a binder has the status “Routing path interrupted,” the routing procedure was interrupted (for example, by a power failure). Open one of the binder documents and select Save & Complete again.

**Note** If the job is canceled in one of several parallel routing paths and there are one or more automated activities in (at least) one of the other routing paths, the binders in these paths can’t be routed after the automated activity. Therefore, the binder can’t be completely joined. For this reason, it is not allowed to cancel routing paths that contain automated activities in parallel paths.

### Application Web UI

**What do these error messages mean?**

This table contains a list of potential error messages, and what you should do if they appear on your screen when using the Application Web UI.

<table>
<thead>
<tr>
<th>Error Message</th>
<th>When it appears</th>
<th>What you should do</th>
</tr>
</thead>
</table>
| An error occurred while initiating a new job        | While initiating a new job       | 1. Check to see if the job really has been initiated. Use the All Jobs tab to check this.  
                                                                                      |                                                                                 | 2. If the job hasn’t been initiated correctly, try to start a new job again. It could be that your connection timed-out. |
| @functions are not allowed in this context          | While initiating a new job       | Ignore this message. The job has been successfully initialized.                    |
| An error occurred while performing an action from a browser client. | While initiating a new job       | This is a generic error message, and the exact reason for the error can’t be determined. Try performing the operation again. |
| Error validating user’s agent execution access     | While trying to initiate a job   | Ensure that you’re entered as a potential activity owner of the activity you’re trying to claim. |
Why do I find Uncertain binder status?

**Problem:** Sometimes, when working on a job using the Application Web UI, the binder status may be confusing. If your browser cache is activated, you may be working on an outdated version of the current document or an outdated view.

**What to do:** Click your browser’s Reload or Refresh button.

Why do I have problems starting a job over the Web?

After you’ve started a job in the Application Web UI, you can access any job that would be available to you in a normal Notes application database.

**Problem:** The Processes Available dialog box displays None available.

**What to do:** Try the following.

- Check that the URL entered in the browser leads to the correct application database.

- Ensure that you have been listed as one of the potential initiators for the first activity of the process.

- Ensure that the Application Setup document contains the IP address and the correct path and file name of the Notes database you want to access.

- The process cache in the Application Setup document may be outdated. Ask the application database owner or another Lotus Workflow administrator with the ACL role [Process Cache] to use the action Cache Available Processes. (In the menu: View - Administration - Cache. This agent ensures that all available processes are cached in your application database.

**Note** In the Application Setup document the option “Enable Process Cache” must be enabled (under Initiation settings), in order to be enabled to start jobs by using the Web UI.

Lotus Workflow Architect

**What’s the difference between a cluster and a subprocess?**

**Cluster.** A cluster is merely a grouping of activities in the process window. It’s used to simplify the display of the process diagram. Any cluster is a part of only one process design. The Lotus Workflow Engine doesn’t change due to clusters at all.

**Subprocess.** A subprocess is used to link two different process designs. A host process includes the process steps of a nested subprocess. The process definitions of each (host process and subprocess) are still stored as two separate entities. Each process can include several different subprocesses. Likewise, each process can be included as a subprocess
within many other host processes. Linking a subprocess has an effect only on the process design level (build time). The Lotus Workflow Engine follows the same structure and exchanges control between the different process layers.

- Stored processes provide reusable building blocks (in the Business Object library) that can be used to design new processes. Thus, high-level processes can be designed very quickly based on existing building blocks.

- For example, a Library of ISO 9000-certified process modules can be developed to use within another host process. If the same subprocess is used in several other processes, all links connect to the same physical subprocess definition. Therefore, any changes to a subprocess will automatically affect all other processes linked to this specific subprocess. Host processes do not have to be modified or refined in order to make the changes effective.

- The maintenance and customization of reusable subprocess building blocks can be managed globally. Modifications in the process building blocks can thus be achieved immediately without downtime or delay in all involved processes.

**What’s the difference between saving and activating a process?**

The difference between saving and activating a process is very important. Any process can be saved once it has been designed, even if it isn’t fully completed. To activate a process the Lotus Workflow Architect has to translate the process definition into a format that can be interpreted by the Lotus Workflow Engine.

- Only fully defined processes that have been checked for errors can be activated.

- Only activated processes can be used to initiate new jobs in the application database.

**Why can’t I open databases or list any servers in the Lotus Workflow Architect?**

**Problem:** In the Lotus Workflow Architect, when you use the command File - Open Databases, servers can’t be located or databases don’t open.

There are three reasons why this may occur:

- The Lotus Workflow Architect can’t find any notes.ini file.
- Your current version of Notes has more than one notes.ini file.
- There is more than one version of Lotus Notes on your system.

**What to do:** Try these solutions.

- If the Lotus Workflow Architect can’t find the notes.ini file, move this file into the Windows directory.
• If you have only one version of Notes, but there is more than one notes.ini file, delete all except the most current one (use the file date to determine this).

• If you operate more than one version of Lotus Notes, copy the notes.ini file of the version that will be used with the Lotus Workflow Architect into the Windows directory. Ensure that this is the only notes.ini file in this directory.

Why can’t I open the Lotus Workflow Architect?

Problem: When you click on the Lotus Workflow Architect icon, the Lotus Workflow Architect doesn’t open.

There are two reasons why this may occur:

• The Lotus Workflow Architect has no reference to the Notes directory.

• This will occur if the Lotus Workflow Architect can’t find the nnotes.dll file (32-bit version) or _notes.dll (16-bit version). These files are installed in the Notes directory, but the Lotus Workflow Architect can’t locate them.

What to do: Create a shortcut for the Lotus Workflow Architect on your desktop.

• Right-click on the Lotus Workflow Architect shortcut, and select Properties on the pop-up menu. A dialog box appears.

• Select the Shortcut tab. Beside Start in, ensure that the path to your Lotus Notes directory is entered properly.

Why can’t the Notes databases be opened from the Lotus Workflow Architect?

The Lotus Workflow Architect has several ways to launch Lotus Notes:

• Use shortcuts to the Organization Directory and the Application databases.

• In the menu, choose Help - Contents or Help - Search.

• Double-click organization objects to display their properties and open the Organization Directory.

If these methods aren’t working (i.e., Lotus Notes doesn’t start), make sure you have the version of Notes supported by this version of Lotus Workflow.

Why does the Lotus Workflow Architect crash?

Problem: The Lotus Workflow Architect crashes.

What to do: Make sure that the file Notes.ini file has been installed.
Why doesn’t an existing application database appear in the Open Databases dialog box?
To update your Open Databases dialog box view, close and reopen the dialog box.

Why doesn’t my newly saved process or its new version number appear in the Open Process dialog box?
Problem: After creating a new process or a new version of an existing process in the Lotus Workflow Architect, the name of this process or its version number is not displayed in the Open Process dialog box.
Reason: The view of the corresponding process definition database hasn’t been updated properly.

What to do: You must manually update the view of the Process Definition database. In Lotus Notes:

• Open the corresponding process definition database.
• Press CTRL+SHIFT+F9 to update the views.
• Try to open your process in the Lotus Workflow Architect again.

Why don’t new agents and forms immediately appear in the dialog boxes?
Problem: New agents and forms don’t appear.

What to do: In order to have new agents and forms appear in the dialog box list in the Lotus Workflow Architect, close and reopen the dialog box in question.
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