



Informatica® PowerExchange for Lotus  
Notes

10.5.9

# User Guide for PowerCenter

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# Preface

Use the *Informatica® PowerExchange® for Lotus Notes User Guide for PowerCenter®* to learn how to extract from and load to Lotus Notes by using PowerCenter Client. Learn to create a Lotus Notes connection, develop mappings, and run sessions in an Informatica domain.

## Informatica Resources

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To find online support resources on the Informatica Network, visit <https://network.informatica.com> and select the eSupport option.

## CHAPTER 1

# Understanding PowerExchange for Lotus Notes

This chapter includes the following topics:

- [Understanding PowerExchange for Lotus Notes Overview, 8](#)
- [PowerCenter and Lotus Notes Integration, 8](#)
- [Lotus Notes Metadata, 9](#)

## Understanding PowerExchange for Lotus Notes Overview

PowerExchange for Lotus Notes integrates with PowerCenter to extract and load data into the Lotus Notes database. The PowerCenter Integration Service connects to the IBM Lotus Domino server to read and write data into the Lotus Notes database. Lotus Notes sources represent forms, views, and independent documents in the Lotus Notes system. Lotus Notes targets represent forms in the Lotus Notes system.

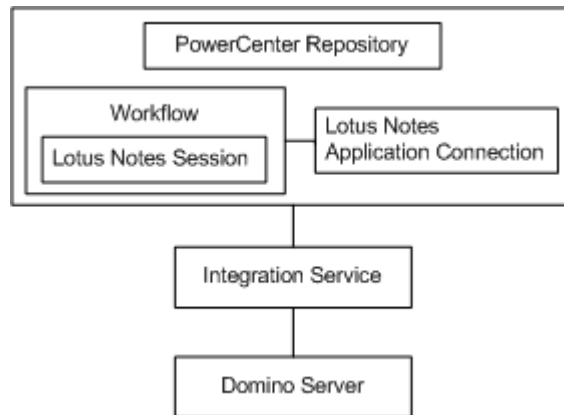
Use PowerExchange for Lotus Notes to transfer email data from a Lotus Notes email application to any target system. You can transfer attachments and rich text fields that contain data such as text, graphics, and tables. You can create a relational model based on a star schema for the Lotus Notes sources that contain multi-value fields. Multi-value fields correspond to multiple records in a target system. You can filter documents based on Lotus Notes formulas.

## PowerCenter and Lotus Notes Integration

The Designer connects to the Domino server to import metadata into PowerCenter. The Designer imports source and target definitions that represent metadata for the Lotus Notes sources and targets. Use the imported metadata in the mappings to run Lotus Notes sessions.

The PowerCenter Integration Service connects to the Domino server to read and write data into the Notes database.

The following figure shows how the PowerCenter Integration Service integrates with Lotus Notes to read and write Lotus Notes data:



## Code Page

When you configure a Lotus Notes application connection in the Workflow Manager for a Lotus Notes source or target, the PowerCenter Integration Service selects a code page for the document data, which is the code page of the PowerCenter Integration Service.

# Lotus Notes Metadata

Use PowerExchange for Lotus Notes to import source and target definitions from Lotus Notes. Source definitions represent metadata for Lotus Notes forms, views, email databases, and independent documents. Target definitions represent metadata for Lotus Notes forms. Lotus Notes metadata provides a logical view and description of the columns and datatypes in the Lotus Notes system. When you import a source or a target definition, you import the metadata from the Lotus Notes system.

## Forms

A form defines the layout and functionality of a document. You can use the default Lotus Notes forms or create custom forms. Forms contain fields that collect and display information.

## Views

A view displays documents in a Notes database. You can display documents that are filtered based on formulas or are based on a selection criteria. A view can contain fields from multiple forms.

## Independent Documents

Independent documents represent all documents in a Notes database. A document can be associated with a form.

## Email Databases

An email database stores the data in a Lotus Notes email application. An email database contains all emails stored as documents.

## CHAPTER 2

# PowerExchange for Lotus Notes Configuration

This chapter includes the following topics:

- [PowerExchange for Lotus Notes Configuration Overview, 11](#)
- [Registering the Plug-in, 12](#)
- [Configuring Java Properties, 13](#)
- [Installing Lotus C++ API Toolkit on Windows, 13](#)
- [Copying Lotus Notes API Library, 14](#)
- [Configuring SSL Authentication \(Optional\), 14](#)
- [Creating and Configuring the lotusnotes.ini File \(Optional\), 14](#)

## PowerExchange for Lotus Notes Configuration Overview

PowerExchange for Lotus Notes installs with the Informatica services. Before you use PowerExchange for Lotus Notes, you must complete configuration tasks.

### Configuring PowerExchange for Lotus Notes

To configure PowerExchange for Lotus Notes, complete the following steps:

1. Create a registry entry for PowerExchange for Lotus Notes on the client machine:
  - a. Access the following location:  
<Informatica installation directory>\clients\PowerCenterClient\client\bin
  - b. Run the PWX\_LOTUSNOTES\_64.reg file to create the registry entry.
2. Register the PowerExchange for Lotus Notes plug-in with the repository.
3. Configure Java properties. Configure Java properties in the Informatica Administrator for each PowerCenter Integration Service process that runs Lotus Notes sessions.
4. Install the Lotus C++ API 3.0 toolkit. Install the Lotus C++ API 3.0 toolkit on the machine hosting the PowerCenter Client.
5. Copy the Lotus Notes API library. Copy the Lotus Notes API library to the PowerCenter Services machine.
6. Configure SSL Authentication (Optional). Establish a secure connection with the Domino server.

After you configure PowerExchange for Lotus Notes, you can create connections to access Lotus Notes. Create connection objects in the Workflow Manager so the PowerCenter Integration Service can connect to Lotus Notes.

## Registering the Plug-in

After you create a registry entry for PowerExchange for Lotus Notes, register the plug-in with the repository. If you are upgrading from a previous version, update the plug-in registration when you register the plug-in.

To register the plug-in, the repository must be running in exclusive mode. Use the Administrator tool or the `pmrep RegisterPlugin` command line program to register the plug-in. If you do not have the correct privileges to register the plug-in, contact the user who manages the PowerCenter Repository Service.

The plug-in file is an .xml file that defines the functionality of the adapter. When you install the server component, the installer copies the plug-in file to the following directory:

```
<Informatica installation directory>/server/bin/plugin  
<Informatica installation directory>/server/bin/plugin
```

The name of the plug-in file for PowerExchange for Lotus Notes is `pmlotus.xml`.

## Registering the Plug-in from the Administrator Tool

Register a repository plug-in to add its functionality to the repository.

1. Run the PowerCenter Repository Service in exclusive mode.
2. In the **Navig ator**, select the PowerCenter Repository Service to which you want to add the plug-in.
3. In the **Contents** panel, click the **Plug-ins** view.
4. In the **Actions** menu of the **Domain** tab, select **Register Plug-in**.
5. On the **Register Plug-in** page, click the **Browse** button to locate the plug-in file.
6. Enter your user name, password, and security domain.

The **Security Domain** field appears when the Informatica domain contains an LDAP security domain.

7. Click **OK**.

The PowerCenter Repository Service registers the plug-in with the repository. The results of the registration operation appear in the activity log.

8. Run the PowerCenter Repository Service in normal mode.

## Registering the Plug-in from the Command Line Program

You can use the `pmrep RegisterPlugin` command to register the plug-in from the command line program.

1. Run the PowerCenter Repository Service in exclusive mode.
2. Run the `pmrep Connect` command to connect to the Repository Service using a user account with Administrator Repository privilege.

The `RegisterPlugin` command uses the following syntax:

```
pmrep connect -r <repository name> -d <domain_name> -n <domain user name> -x  
<domain_password>
```

3. Find `<adaptername>.xml` in the following directory:

```
<Informatica installation directory>\server\bin\Plugin
```

4. Run the `pmrep RegisterPlugin` command to update the repository.

The `RegisterPlugin` command uses the following syntax:

```
pmrep registerplugin -i <Informatica installation directory>\server\bin\Plugin  
  \<adaptername>.xml -e
```

## Configuring Java Properties

You must configure Java properties in the Administrator tool for each PowerCenter Integration Service process that runs Lotus Notes sessions.

The following table describes the properties you configure:

Property	Description
Java SDK Classpath	You can set the CLASSPATH to any JAR file you need to run a session that requires java components. The PowerCenter Integration Service appends the values you set to the system CLASSPATH.
Java SDK Minimum Memory	Minimum amount of memory the Java SDK uses during a session. If the session fails due to a lack of memory, you can increase this value. Default is 32 MB. If you want to increase the value, specify the value followed by M. For example, specify 70M for 70 MB.
Java SDK Maximum Memory	Maximum amount of memory the Java SDK uses during a session. If the session fails due to a lack of memory, you can increase this value. Default is 64 MB. If you want to increase the value, specify the value followed by M. For example, specify 90M for 90 MB.

## Installing Lotus C++ API Toolkit on Windows

You must install the Lotus C++ API toolkit on the machine where the PowerCenter Client is installed.

1. Download the Lotus C++ API 3.0 toolkit from the IBM Software Access Catalog.  
You must enter a valid user name and password to access the IBM Software Access Catalog.
2. Install the Lotus C++ API 3.0A toolkit on the machine where the PowerCenter Client is installed
3. Set the PATH environment variable to the following directory:

```
<Lotus C++ Toolkit Installation Directory>\lib\mswin32
```

For example:

```
C:\notescpp\lib\mswin32
```

## Copying Lotus Notes API Library

You must copy the NCSO.jar file from the machine where the Domino server is installed to the machine where the PowerCenter Integration Service process runs.

1. Locate the NCSO.jar file in the following directory:

`<Domino Server Installation Directory>\data\domino\java`

2. Copy the file to the following directory on the Informatica services machine:

`<Informatica Installation Directory>\server\bin\javaliib`

## Configuring SSL Authentication (Optional)

If you are installing PowerExchange for Lotus Notes, you can configure SSL authentication.

The PowerCenter Integration Service can communicate over Secure Socket Layer (SSL) with the Domino server. SSL is a protocol that ensures secure data transfer between a client and a server. It encrypts data exchanged between the client and the server.

**Note:** SSL can impact performance because all data exchanges must be decrypted.

The PowerCenter Integration Service uses a trust certificate file that contains authentication certificates to communicate with the Domino server over SSL. You can specify the trust certificate file name when you configure a Lotus Notes application connection.

1. Configure the Domino server with a common trusted root certificate from a Certificate Authority (CA).

The common trusted root certificate creates a Domino keyring, which contains a .kyr keyring file and .sth stash file. For more information, contact the Domino administrator.

2. Copy the keyring and the stash file to the following directory:

`<Domino Server Installation Directory>/data`

3. Restart the DIIOP task.

A file named TrustedCerts.class is created in the following directory:

`<Domino Server Installation Directory>/data/domino/java`

4. Copy the .class file to the PowerCenter Services machine and update the CLASSPATH.

5. Specify the name of the .class file in the Lotus Notes application connection object.

## Creating and Configuring the lotusnotes.ini File (Optional)

You can use the lotusnotes.ini file to indicate whether to sort fields and columns when you import a Lotus Notes source or target definition. By default, PowerExchange for Lotus Notes sorts the fields and columns that you import from a Lotus Notes database.

1. Create the lotusnotes.ini file in the following directory:

`<INFA_HOME>\clients\PowerCenterClient\client\bin`

2. Add the following entries to the `lotusnotes.ini` file:

```
[default]
SORT_COLUMNS
```

3. If you want to sort fields or columns when you import a Lotus Notes source or target definition, set `SORT_COLUMNS=TRUE`.
4. If you want to view fields or columns in the same order as in the Lotus Notes database when you import a Lotus Notes source or target definition, set `SORT_COLUMNS=FALSE`.
5. Save the `lotusnotes.ini` file.

## CHAPTER 3

# Lotus Notes Sources

This chapter includes the following topics:

- [Lotus Notes Sources Overview, 16](#)
- [Lotus Notes Fields and Attributes, 16](#)
- [Creating a DSN, 18](#)
- [Importing a Lotus Notes Source Definition, 19](#)
- [Importing a Source Definition from a Lotus Notes Mail Database, 21](#)
- [Importing a Source Definition from Forms, Views, or Independent Documents, 22](#)
- [Updating Lotus Notes Source Definitions, 25](#)
- [Troubleshooting Lotus Notes Sources, 25](#)

## Lotus Notes Sources Overview

Lotus Notes source definitions represent metadata for Lotus Notes forms, views, independent documents, and mail databases.

You can import the following Lotus Notes components as source definitions:

- **Forms.** Define the structure of a document. Forms contain fields that collect and display information. A document is associated with a form and contains fields. Fields have attributes such as datatype, precision, and scale.
- **Views.** Group and display documents based on filter criteria. For example, you can define a view to display all documents created by a specific author. A view is similar to a table in a relational database.
- **Independent documents.** Include all documents in a Notes database.
- **Mail databases.** Store email data for a Lotus Notes email application.

Create a Data Source Name (DSN) in the Designer. A DSN contains information to connect to the Domino server. Use the Import from Lotus Notes Source Wizard to import a Lotus Notes source definition. When you import a source definition, you can filter the metadata you want to display in the Designer.

After you import a source definition, you can view the columns and datatype information. You can preview data and update the source definition.

## Lotus Notes Fields and Attributes

## Rich Text Fields

Lotus Notes defines a Rich Text datatype for fields. Rich text fields can contain images, tables, and formatted or plain text. The PowerCenter Integration Service transfers rich text fields in binary format. The PowerCenter Integration Service does not transform the rich text data. It writes the text in tables as comma-separated values (CSV) and the images in GIF or BMP format based on their storage type in Lotus Notes.

If the input data for any component of a rich text field is greater than 64 KB, change the column precision in the source definition.

## Multi-value Fields

A multi-value field can store more than one value at a time. The `IsMultivalued` attribute on the Attributes tab indicates whether the field is a multi-value field.

For example, an `EmployeeInfo` form contains `EmpID`, `Name`, and `Phone` fields. In this form, the `Phone` field is a multi-value field.

The following table shows the form fields:

EmpID	Name	Phone
2001	John Smith	408-734-1833, 408-734-1899
2002	Helen Mitchell	650-988-9275, 408-528-8912

You can transfer a multi-value field as text to store it as a single record into the target. The PowerCenter Integration Service inserts the following records into the target:

```
[2001, John Smith, (408-734-1833, 408-734-1899)]  
[2002, Helen Mitchell, (650-988-9275, 408-528-8912)]
```

You can denormalize a multi-value field to store each value in a multi-value field as a separate record into the target.

The PowerCenter Integration Service inserts the following records into the target:

```
[2001, John Smith, 408-734-1833]  
[2001, John Smith, 408-734-1899]  
[2002, Helen Mitchell, 650-988-9275]  
[2002, Helen Mitchell, 408-528-8912]
```

## Key Fields

You can define a column in a source definition as a key field. When you define a column as a key field, you ensure that the PowerCenter Integration Service does not transfer documents that contain a null value for this column.

Consider an example where you want to extract data from a Notes database and load it into a relational database. The target tables can contain primary-key or foreign-key columns that cannot contain null values.

Define the column in the source definition as a key field. The PowerCenter Integration Service filters documents that contain null values for this column.

## Field Attributes

You can view the field attribute values on the Attributes tab.

The following table describes the field attributes for a source definition:

Attribute	Description
ISKEY	Indicates whether the field is defined as a key field. The Designer sets the value to 1 if the field is defined as a key field. The Designer sets the value to 0 if the field is not defined as a key field.
Multivalue2String	Indicates whether a multi-value field is transferred as text. The Designer sets the value to 1 if a multi-value field is transferred as text. The Designer sets the value to 0 if a multi-value field is not transferred as text.
BusinessName	Displays the business name for the field.
IsMultivalued	Indicates whether the field is a multi-value field. The Designer sets the value to 1 if the field is a multi-value field. The Designer sets the value to 0 if the field is not a multi-value field.

## Creating a DSN

Create a DSN to connect to the Domino server. A DSN contains connection information such as server name, password, and Notes database file name.

You can create a DSN in the following situations:

- You need to connect to a Domino server for which a DSN is not available.
- You need to connect to the Domino server for which a DSN is available. However, you do not have the privileges to connect to the Domino server through this DSN.

1. In the Source Analyzer, click Sources > Import from Lotus Notes.

The Import Lotus Notes Source dialog box appears.

2. Click the Browse button.

The Create DSN dialog box appears.

3. Enter the following DSN parameters:

DSN Parameter	Description
Data Source Name	Name for the DSN.
User ID File	Absolute path for the User ID file. This file stores the credentials and the Lotus Notes certificates for the user.
Password	Password to connect to the Domino server.
Server Name	Name of the Domino server.
Import Mail Database	Imports email metadata.

4. Click Authenticate.

A list of databases on the server appears.

5. Select the database.

6. Click OK.

## Importing a Lotus Notes Source Definition

When you connect to Lotus Notes to import a source definition, the Import Lotus Notes Source dialog box displays views, forms, and independent documents.

**Note:** You cannot import definitions of the fields that are part of the Layout area.

In the Import List, the Designer displays the source definitions that are imported in the repository through this DSN.

## Connecting to Domino Server

Use a DSN to connect to the Domino server. In the Import Lotus Notes Source dialog box, select a DSN, and enter the password. Click Connect to display forms, views, and independent documents in the Designer.

## Filtering Metadata

Enter a filter condition to reduce the source metadata that the Designer displays in the wizard. You can filter forms, views, or imported tables based on their names. Imported tables represent the existing source definitions in the repository associated with a DSN. You can use wildcard characters or regular expressions to filter metadata.

### Wildcard Characters

Use percent sign (%) or asterisk (\*) as wildcard characters in a filter condition. Use the percent sign (%) to represent multiple characters and an asterisk (\*) to represent zero or more characters. Use the following guidelines when you enter a wildcard character:

- Filter condition as a prefix. For example, enter MAT\* or MAT% to display all the forms, views, and imported tables names that begin with MAT.
- Filter condition as a suffix. For example, enter \*AT or %AT to display all the forms, views, and imported tables names that end with AT.
- Filter condition as a substring. For example, enter \*MAT\* or %MAT% to display all forms, views, and imported tables names that contain MAT.

When a filter condition does not satisfy the guidelines for wildcard characters, the Designer evaluates the filter condition as a regular expression.

### Regular Expressions

A regular expression describes a range or pattern of values that a filter condition can contain.

The following table describes the metacharacters that you can use in a regular expression:

Metacharacter	Description
.	Matches any single character.
[ ]	Indicates a character class. Matches any character inside the brackets. For example, [abc] matches "a," "b," and "c."
^	<p>If this metacharacter occurs at the start of a character class, it negates the character class. A negated character class matches any character except those inside the brackets. For example, [^abc] matches all characters except "a," "b," and "c."</p> <p>If ^ is at the beginning of the regular expression, it matches the beginning of the input. For example, ^[abc] matches the input that begins with "a," "b," or "c."</p>
-	Indicates a range of characters in a character class. For example, [0-9] matches any of the digits "0" through "9."
?	Indicates that the preceding expression to this metacharacter is optional. It matches the preceding expression zero or one time. For example, [0-9][0-9]? matches "2" and "12."
+	Indicates that the preceding expression matches one or more times. For example, [0-9]+ matches "1," "13," "666," and similar combinations.
*	Indicates that the preceding expression matches zero or more times. For example, the input <abc*> matches <abc>, <abc123>, and similar combinations that contains <abc> as the preceding expression.
??, +?, *?	Modified versions of ?, +, and *. These match as little as possible, unlike the versions that match as much as possible. For example, the input "<abc><def>," <.*?> matches "<abc>" and the input <.*> matches "<abc><def>."
( )	Grouping operator. For example, (\d+)*\d+ matches a list of numbers separated by commas such as "1" or "1,23,456."
{ }	Indicates a match group.
\	<p>An escape character, which interprets the next metacharacter literally. For example, [0-9]+ matches one or more digits, but [0-9]\+ matches a digit followed by a plus character. Also used for abbreviations such as \a for any alphanumeric character.</p> <p>If \ is followed by a number <i>n</i>, it matches the <i>n</i>th match group, starting from 0. For example, &lt;{.*?}&gt;.*?&lt;/\0&gt; matches "&lt;head&gt;Contents&lt;/head&gt;".</p> <p>In C++ string literals, two backslashes must be used: "\\+," "\\a," "&lt;{.*?}&gt;.*?&lt;/\0&gt;."</p>
\$	At the end of a regular expression, this character matches the end of the input. For example, [0-9]\$ matches a digit at the end of the input.
	Alternation operator that separates two expressions, one of which matches. For example, T the matches "The" or "the."
!	Negation operator. The expression following ! does not match the input. For example, a!b matches "a" not followed by "b."

The following table describes the abbreviations that you can use in the regular expressions:

Abbreviation	Definition
\a	Any alphanumeric character, ([a-zA-Z0-9]).
\b	White space (blank), ([ \t]).
\c	Any alphabetic character, ([a-zA-Z]).
\d	Any decimal digit, ([0-9]).
\h	Any hexadecimal digit, ([0-9a-fA-F]).
\n	Newline, (\r(\r?\n)).
\q	Quoted string, (\\"[^\"]*" '\'[^\']*\'').
\w	Simple word, ([a-zA-Z]+).
\z	Integer, ([0-9+]).

## Importing a Source Definition from a Lotus Notes Mail Database

When you import a source definition from a Lotus Notes mail database, you import the email metadata. You cannot view or edit the column information for a mail database source definition. The Designer lists the source definition in the Import List. The naming convention for the source definition is <DSN name>:<Mail database name>. For example, the Import List displays the source definition name as MailDB:SHarris, where MailDB is the DSN name and SHarris is the Lotus Notes mail database name.

The following table describes the options that you can use when you import a Lotus Notes mail database as a source definition:

Field	Description
To	Contains all email IDs specified in the To field.
From	Contains email ID in the From field.
Cc	Contains all email IDs specified in the Cc field.
Bcc	Contains all email IDs specified in the Bcc field.
Transfer Attachments	Transfers attachments in binary format.
Sent Date	Contains the date on which an email was sent.
Subject	Contains the subject of the email.

Field	Description
Body	A rich text field that contains email data.
Transfer Text	Transfers a rich text field as text.
Transfer Images	Transfers .BMP and .GIF images in binary format.
Transfer Tables	Transfers the text in tables as a comma-separated list.

1. In the Source Analyzer, click Sources > Import from Lotus Notes.  
The Import Lotus Notes Source dialog box appears.
2. Select a DSN from the list.  
If you need to create or modify a DSN, click the Browse button to open the Create DSN dialog box.
3. Click the Browse button.  
The Create DSN dialog box appears.
4. Select Import Mail Database.
5. Click Authenticate.  
The Import Mail Database dialog box appears.
6. Enter the name of the Lotus Notes mail database to import.
7. Select at least one field to import from the Lotus Notes mail database.  
**Note:** By default, the email body is a rich text field. To transfer the text of the email body, select the Body and Transfer Text options.
8. Click OK.
9. In the Create DSN dialog box, click OK.  
The Import Lotus Notes Source dialog box displays the selected mail database in the Import List.

## Importing a Source Definition from Forms, Views, or Independent Documents

When you import forms, views, or independent documents as source definitions, you can filter the source metadata that displays in the Designer. When you import a Lotus Notes source, you can select the fields that correspond to columns in a source definition. The Designer displays the source definitions in the Import List. The naming convention for the source definition is <DSN name>:<Table name>.

The following table describes the options that you can use when you import a form, view, or independent document as a source definition:

Field	Description
Key Field	Transfers the documents that do not contain null value in the column for which you have enabled this option.
Multi-value Field	Indicates whether a source definition contains multi-value fields. The Designer sets this value to 1 if the source definition has multi-value fields. The Designer sets this value to 0 if the source definition does not have multi-value fields.
Transfer as Text	Transfers a multi-value or Date/Time datatype field as text.
Transfer Text	Transfers a rich text field as text.
Transfer Images	Transfers .BMP and .GIF images in binary format.
Transfer Tables	Transfers text in the tables as a comma-separated list.
Transfer Attachments	Transfers attachments in binary format.

1. In the Source Analyzer, click Sources > Import from Lotus Notes.  
The Import Lotus Notes Source dialog box appears.
2. Select a DSN from the list.
3. Enter the password.
4. Optionally, enter a filter condition.
5. Click Connect.  
The Designer displays a list of forms, views, and independent documents in the Select an Entry to Import area.
6. Select a Lotus Notes source to import, and click the right arrows (>>) button.  
The Select Fields dialog box appears.
7. Enter the table name.
8. From the Fields and Columns list, select at least one field, and click the right arrows (>>) button.  
The Edit Column Information dialog box appears.
9. Enter the column information.
10. Click OK.  
The Select Fields dialog box appears.
11. Select Transfer Attachments to transfer files in a document.  
The Attachment and AttachmentName columns are added to the Import List. AttachmentName stores the attachment name along with the extension. An attachment stores the data in binary format.
12. Click Add Formula Field to add a column based on a Lotus Notes formula.
13. Click Formula to filter documents.
14. Click the up and down arrows to change the order of the fields.
15. Click OK to import the source definition.

## Adding Formula-Based Columns

You can add a column to a source definition that is associated with a Lotus Notes formula. When you enter a Lotus Notes formula, the PowerCenter Integration Service calculates the data in the column after evaluating the formula. If you do not enter a valid formula, no data is retrieved for the column.

1. In the Source Analyzer, click Sources > Import from Lotus Notes.

The Import Lotus Notes Source dialog box appears.

2. Select a Lotus Notes source.

The Select Fields dialog box appears.

3. Click Add Formula Field.

The Edit Column Information dialog box appears.

4. Enter the column information.

5. Click Edit Formula.

The Edit Formula dialog box appears.

6. Enter the formula for the formula-based column, and click OK.

A formula must start with an at sign (@).

**Note:** The PowerCenter Integration Service writes a message to the session log if you have specified an invalid formula.

7. In the Edit Column Information dialog box, click OK.

The Designer displays the field in the Selected Fields area.

## Filtering Documents

The default formula used to retrieve documents associated with a form is `SELECT form="<SourceTable>"`, where SourceTable is the name of the form, view, or mail database.

You can override the default formula to retrieve documents based on a condition.

1. In the Source Analyzer, click Sources > Import from Lotus Notes.

The Import Lotus Notes Source dialog box appears.

2. Select a Lotus Notes source.

The Select Fields dialog box appears.

3. Select the fields to import.

4. Click Formula.

The Formula dialog box appears.

5. Enter a Lotus Notes formula to select the documents.

6. Click Validate.

If the formula is valid, the Preview Data dialog box appears. You can preview the data in Preview Data dialog box.

7. Click Save.

The saved formula appears in the Metadata Extensions tab. You can edit the formula on the Metadata Extensions tab.

# Updating Lotus Notes Source Definitions

Manually edit the definition if you need to configure properties that you cannot import or if you want to make minor changes to the definition.

You can edit a Lotus Notes source definition. You can edit the metadata extensions, filter conditions, or the columns in the source definition.

**Note:** If the changes are significant, reimport the definition. This overwrites or renames the existing source definition.

## Editing a Source Definition

On the Metadata Extensions tab, you can edit the formula for filtering documents and the database file name for a source definition.

The following table describes the vendor-defined metadata extensions for a source definition:

Metadata Extension	Description
Formula	Stores the Lotus Notes formula to select documents.
HasMultipleValueFields	Indicates whether the source definition contains multi-value fields. The Designer sets this value to 1 if the source definition has multi-value fields. The Designer sets this value to 0 if the source definition does not have multi-value fields.
SourceDbFile	Stores the name of the Notes database file on which the source definition is based. After you import a source definition, you can edit the SourceDbFile metadata extension to associate the source definition with a different database.
SourceTable	Stores the name of the form, view, or the mail database based on which you import the source definition.
SourceType	Indicates the Lotus Notes source type. The Designer sets it to 0 for forms, 1 for views, and 2 for mail-based source definitions.

## Reimporting a Source Definition

Use the wizard to edit and reimport a source definition. Edit the columns and filters in the Import Lotus Notes Source dialog box to maintain consistency between the source definition and the Notes database metadata. In the Select Fields dialog box, you can add formula-based columns, filter documents associated with the source definition, add attachments, and change the order of the fields. If you modify the name of the source definition, the Designer creates another source definition. Otherwise, it updates the existing source definition.

# Troubleshooting Lotus Notes Sources

[I can connect to the specified Domino server, but cannot select a database.](#)

Verify that the databases exist in the default data directory and you have permissions to view data on the specified Domino server.

The Import from Lotus Notes menu item is disabled.

A valid license key for PowerExchange for Lotus Notes was not found or the license has expired. Contact Informatica Global Customer Support.

## CHAPTER 4

# Lotus Notes Targets

This chapter includes the following topics:

- [Lotus Notes Targets Overview, 27](#)
- [Lotus Notes Fields and Attributes, 27](#)
- [Importing a Lotus Notes Target Definition, 29](#)
- [Updating Lotus Notes Target Definitions, 30](#)
- [Troubleshooting Lotus Notes Targets, 30](#)

## Lotus Notes Targets Overview

Lotus Notes target definitions represent metadata for Lotus Notes forms. A form defines the structure of a document.

Create a DSN to connect to the Domino server. The Designer connects to the Domino server to import metadata from Lotus Notes. Use the Import Lotus Notes Target Wizard to import a Lotus Notes target definition. You can filter the metadata that the Designer displays in the wizard.

When you import a target definition, you can configure the column attributes. You can define a column as a key field to apply update strategies. You can perform insert, update, and delete operations on the documents. You cannot modify the datatype of a column. After you import a target definition, you can view the column and datatype information. You can update the target definition in the Designer.

## Lotus Notes Fields and Attributes

### Key Fields

When you import a target definition, define a column as a key field for applying update strategies. Define the update strategy in the session properties. This column identifies the documents for performing operations such as update or delete documents.

For example, an Employee form in a Notes database contains EmpID, JoiningDate, and Phone fields. You want to update the contact details for the employees who have moved recently. These details are stored in a relational database.

The following table shows sample data for the Employee form in a Notes database:

EmpID	JoiningDate	Phone
100	01/01/05	408-734-1832
101	10/01/06	510-321-9807
102	04/01/06	408-921-8964
103	12/01/07	408-732-8976
104	02/01/08	615-863-9089

The following table shows the sample data in a relational table:

EmpID	Phone
100	615-734-7621
103	510-352-9731

Import the Employee form as a target definition. Define the EmpID as the key field. Import the Contact Details table as a source definition.

The PowerCenter Integration Service selects documents based on the key field to perform the update strategy operations. The PowerCenter Integration Service updates the following records in the Employee form based on the EmpID field:

```
[100,01/01/05,615-734-7621]
[103,12/01/07,510-352-9731]
```

## Field Attributes

The Designer displays the field attribute values on the Attributes tab.

The following table describes field attributes for a target definition:

Attribute	Description
ISKEY	Indicates whether the field is defined as a key field. The Designer sets this value to 1 if the column is defined as a key field. The Designer sets this value to 0 if the column is not defined as a key field.
BusinessName	Displays the business name for the column.
AssociatedRichText	Displays the rich text field in the form that contains binary data.

# Importing a Lotus Notes Target Definition

When you connect to Lotus Notes to import a target definition, the Import Lotus Notes Target dialog box displays the forms and target definitions associated with the DSN.

The Designer displays the target definitions in the Import List. The naming convention for the target definition is <DSN name>:<Table name>.

You cannot import definitions of the fields that are part of the Layout area.

The following table describes the options that you can use when you import a Lotus Notes target definition:

Field	Description
Transfer Attachments	Transfers attachments in binary format.
Key Field	Transfers the documents that do not contain null value in the column for which you have enabled this option.
Multi-value Field	Indicates whether the target definition contains multi-value fields. The Designer sets this value to 1 if the target definition has multi-value fields. The Designer sets this value to 0 if the target definition does not have multi-value fields.
Transfer as Text	Transfers a multi-value field as text.

1. In the Target Analyzer, click Targets > Import from Lotus Notes.  
The Import Lotus Notes Target dialog box appears.
2. Select the DSN to connect to the Domino server.  
If you need to create or modify a DSN, click the Browse button to open the Create DSN dialog box.
3. Enter the password.
4. Optionally, enter a filter condition.
5. Click Connect.  
The Designer displays a list of forms, and target definitions associated with the DSN.  
**Note:** You must have permissions to view the forms.
6. Select the form, and click the right arrows (>>) button.  
The Select Fields dialog box appears.
7. Enter the table name.
8. Select at least one field, and click the right arrows (>>) button.  
The Edit Column Information dialog box appears.
9. Enter the column information.
10. Select a rich text field from the list.  
Use the rich text field to transfer binary data. When you select the rich text field, the Attachment and AttachmentName columns are added to the Selected Fields area. AttachmentName stores the attachment name along with extension. An attachment stores the data in binary format.
11. Click OK to import the target definition.

# Updating Lotus Notes Target Definitions

Manually edit the definition if you need to configure properties that you cannot import or if you want to make minor changes to the definition.

You can edit a Lotus Notes target definition. You can edit the metadata extensions, filter conditions, and columns in a target definition.

**Note:** If the changes are significant, reimport the definition. This overwrites or renames the existing target definition.

## Editing a Target Definition

On the Metadata Extensions tab, you can edit the database file name for a target definition.

The following table describes the vendor-defined metadata extensions:

Metadata Extension	Description
TgtDbFileName	Displays the .nsf Notes database file name for a target definition. This is an editable value.
TgtDbName	Displays the name for the Notes database.
TgtDSN	Displays the DSN associated with the target definition.
TgtFrmName	Displays the name of the form on which the target definition is based.
TgtSrvName	Displays the name of the Domino server.
TgtUserIDFile	Displays the absolute path for the User ID file associated with the DSN.
TgtUserName	Displays the user name associated with the User ID file.

## Reimporting a Target Definition

Use the wizard to edit and reimport the target definition. Use the DSN associated with the target definition to edit the target definition. Edit the columns and filters in the Import Lotus Notes Target dialog box to maintain consistency between the target definition and the Notes database metadata. In the Select Fields dialog box, you can add or remove fields, transfer attachments, and change the order of the fields.

The Designer updates the existing target definition. If you modify the name of the target definition, the Designer creates another target definition. Otherwise, it updates the existing target definition.

# Troubleshooting Lotus Notes Targets

[I can connect to the specified Domino server, but cannot select a database.](#)

Verify that the databases exist in the default data directory and you have permissions to view data on the specified Domino server.

The Import from Lotus Notes menu item is disabled.

A valid license key for PowerExchange for Lotus Notes was not found or the license has expired. Contact Informatica Global Customer Support.

## CHAPTER 5

# Lotus Notes Mappings

This chapter includes the following topics:

- [Creating Lotus Notes Mappings, 32](#)
- [Troubleshooting Lotus Notes Mappings, 34](#)

## Creating Lotus Notes Mappings

Convert a Lotus Notes source definition into a relational model for normalization. The relational model is based on the star schema that contains a central fact table and the tables associated with multi-value fields. The tables have the primary-key foreign-key relationship with the fact table.

1. In the Mapping Designer, click Mappings > Generate Normalized Lotus Notes Mapping.

The Normalize Lotus Notes Source dialog box appears.

2. Select a source definition from the Select Source Table list.
3. Enter a name for the target definition.

**Note:** Oracle is default target database type. You can use the Target Designer to change the default target database type.

4. Click OK.

The Mapping Designer generates a mapplet and target definitions. The mapplet uses the dynamic Lookup transformation to normalize data. The names of the multi-value field tables correspond to the multi-value field names in the Lotus Notes source definition.

5. Link the source definition to the mapplet.

## Example

The following example shows how the PowerCenter Integration Service loads data into relational targets.

Consider the Test\_form1 form with the following fields:

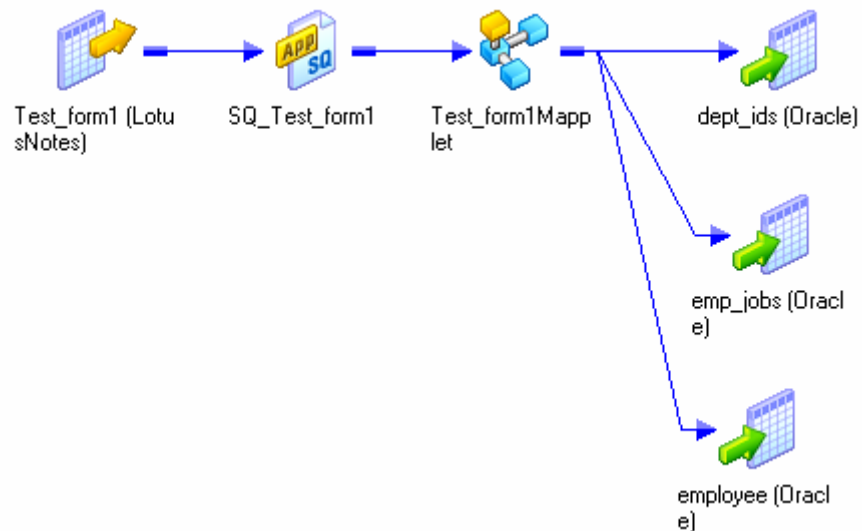
- emp\_no
- emp\_name
- emp\_hiredate
- emp\_jobs
- dept\_ids

In the form, emp\_jobs and dept\_ids are multi-value fields. An employee can be associated with multiple jobs and departments.

The following table shows the sample rows in the Test\_form1 form:

emp_no	emp_name	emp_hiredate	emp_jobs	dept_ids
101	John Smith	01/04/1990	Account Manager, Financial Adviser	10, 12
102	Helen Mitchell	08/05/1995	Business Analyst, Consultant	20, 34

The following figure shows a source definition, an Application Source Qualifier, maplet, and target definitions:



In the mapping, the maplet uses the dynamic Lookup transformation to normalize the multi-value fields.

The following table shows the rows that the PowerCenter Integration Service inserts into dept\_ids, where dept\_idsKey is the primary key for the target:

dept_idsKey	dept_ids
1	10
2	12
3	20
4	34

The following table shows the rows that the PowerCenter Integration Service inserts into emp\_jobs, where emp\_jobsKey is the primary key for the target:

emp_jobsKey	emp_jobs
1	Account Manager
2	Financial Adviser
3	Business Analyst
4	Consultant

The following table shows the rows that the PowerCenter Integration Service inserts into employee, where emp\_jobsKey and dept\_idsKey are the foreign keys for the target:

emp_no	emp_name	emp_jobsKey	emp_hiredate	dept_idsKey
101	John Smith	1	01/04/1990	1
101	John Smith	1	01/04/1990	2
101	John Smith	2	01/04/1990	1
101	John Smith	2	01/04/1990	2
102	Helen Mitchell	3	08/05/1995	3
102	Helen Mitchell	3	08/05/1995	4
102	Helen Mitchell	4	08/05/1995	3
102	Helen Mitchell	4	08/05/1995	4

## Troubleshooting Lotus Notes Mappings

The Generate Normalized Lotus Notes Mapping menu item is disabled.

The PowerCenter license key either does not contain a PowerExchange for Lotus Notes license, or the license has expired. Contact Informatica Global Customer Support to get a PowerExchange for Lotus Notes license.

## CHAPTER 6

# Lotus Notes Sessions

This chapter includes the following topics:

- [Configuring Application Connections, 35](#)
- [Configuring Lotus Notes Sessions, 36](#)

## Configuring Application Connections

Configure an application connection before the PowerCenter Integration Service can read data from Lotus Notes sources or write data to Lotus Notes targets. When you configure an application connection, you specify the connection attributes that the PowerCenter Integration Service uses to connect to the Domino server.

1. In the Workflow Manager, click Connections > Application.  
The Application Connection Browser dialog box appears.
2. Click New.  
The Select Subtype list appears.
3. Select Lotus Notes Connection from the list.
4. Click OK.  
The Connection Object Definition dialog box appears.
5. Enter the following information for the connection object:

Connection Attribute	Description
Name	Name for the connection object.
User Name	User name to connect to the Domino server. Use the User name mentioned in the Person document in the <Domino Installation Directory>. You must use the User Name attribute mentioned in the Basics tab in the Person document. For more information about configuring DIIOp for the Domino server, refer to the following URL: <a href="http://www.ibm.com/developerworks/lotus/library/ls-Java_access_pt1">http://www.ibm.com/developerworks/lotus/library/ls-Java_access_pt1</a>

Connection Attribute	Description
Password	<p>Password to connect to the Domino server. Use the Internet Password in the Person document in the &lt;Domino Installation Directory&gt;.</p> <p>You must use the Internet Password attribute mentioned in the Basics tab in the Person document. For more information about configuring DIIOP for the Domino server, refer to the following URL:  <a href="http://www.ibm.com/developerworks/lotus/library/ls-Java_access_pt1">http://www.ibm.com/developerworks/lotus/library/ls-Java_access_pt1</a></p>
ServerHost	Domino server name and the port number on which the DIIOP process is configured to run. For example, Maple/acme:63148.
Database Filename	Notes database file name. Provide the name of the .nsf file to override the database file from which the source or the target definition was created.
Trust Certificate Filename	<p>Name of the .cer file that contains the trust certificates to communicate with the Domino server over SSL.</p> <p><b>Tip:</b> You do not need to enter the .cer extension for the trust certificate file.</p>

## Configuring Lotus Notes Sessions

When you create a Lotus Notes session, ensure that the session is configured to connect to Lotus Notes. Use the application connection to connect to the underlying source database.

You can add partitions to improve the session performance. By default, the Workflow Manager sets the partition type to pass-through for Lotus Notes sources and targets.

**Note:** You can view load statistics in the session log. The load summary in the Workflow Monitor does not display load statistics.

### Configuring a Session for a Lotus Notes Source

The following table describes the session properties for a Lotus Notes source:

Session Property	Description
Author Name	Retrieves documents created by a particular Notes user. This attribute is applicable for the Lotus Notes source definitions that are based on forms.
Begin Cut-off Date	Retrieves documents created on or after a particular date. Use the mm/dd/yy or mm/dd/yyyy format. This attribute is applicable for the Lotus Notes source definitions that are based on forms.
End Cut-off Date	Retrieves documents created on or before a particular date. Use the mm/dd/yy or mm/dd/yyyy format. This attribute is applicable for the Lotus Notes source definitions that are based on forms.
Formula	Retrieves documents based on a filter condition. Use a valid Lotus Notes syntax for the filter condition. For example, category = "Regular customer" & demand > 2000. This attribute is applicable for the Lotus Notes source definitions that are based on forms.

Session Property	Description
Pre-run Agents	Agents that run before the PowerCenter Integration Service reads data from a Notes database. Use semicolon to separate multiple agents.
Post-run Agents	Agents that run after the PowerCenter Integration Service reads data from a Notes database. Use semicolon to separate multiple agents.
Expected Time Value	Specifies the time value that the PowerCenter Integration Service uses to replace an invalid time value specified in a Lotus Notes Date/Time field.

## Configuring the Time Value for the Date/Time Field

If the time value of a Lotus Notes Date/Time field is not valid, configure the Expected Time Value property to specify the valid time value. Also, verify that the PowerCenter Integration Service, source, and target use the same timezone. The PowerCenter Integration Service writes the time value specified for the Expected Time Value property to the output group of the Lotus Source. If you do not configure the Expected Time Value property or the timezones are not the same, the PowerCenter Integration Service retains the time value that is not valid.

## Configuring a Session for a Lotus Notes Target

The following table describes the session properties for a Lotus Notes target:

Session Property	Description
Error Log File Name	File used to log exceptions when the PowerCenter Integration Service writes data to a Notes database. Provide the absolute path for the error log file. If you do not provide the file name, the PowerCenter Integration Service logs the exceptions in the session log.
Pre-run Agents	Agents that run before the PowerCenter Integration Service writes data to a Notes database. Use semicolon to separate multiple agents.
Post-run Agents	Agents that run after the PowerCenter Integration Service writes data to a Notes database. Use semicolon to separate multiple agents.

## APPENDIX A

# Lotus Notes Datatype Reference

This appendix includes the following topic:

- [Lotus Notes and Transformation Datatypes, 38](#)

## Lotus Notes and Transformation Datatypes

PowerCenter uses the following datatypes in Lotus Notes mappings:

- Lotus Notes native datatypes. Lotus Notes datatypes appear in the Lotus Notes definitions in a mapping.
- Transformation datatypes. Set of datatypes that appear in the transformations. They are internal datatypes based on ANSI SQL-92 generic datatypes, which the PowerCenter Integration Service uses to move data across platforms. They appear in all transformations in a mapping.

When the PowerCenter Integration Service reads source data, it converts the native datatypes to the comparable transformation datatypes before transforming the data. When the PowerCenter Integration Service writes to a target, it converts the transformation datatypes to the comparable native datatypes.

The following table lists the Lotus Notes datatypes that PowerCenter supports and the corresponding transformation datatypes:

Lotus Notes Datatype	Transformation Datatype	Range
Authors	Text	1 to 104,857,600 characters
Checkbox	Text	1 to 104,857,600 characters
Color	Text	1 to 104,857,600 characters
Combobox	Text	1 to 104,857,600 characters
Date/Time	Date/Time	Jan 1, 1753 AD to Dec 31, 9999 AD (precision to nanosecond)
Dialog list	Text	1 to 104,857,600 characters
Formula	Text	1 to 104,857,600 characters
Listbox	Text	1 to 104,857,600 characters
Names	Text	1 to 104,857,600 characters

Lotus Notes Datatype	Transformation Datatype	Range
Number	Decimal	Precision 1 to 28 digits, scale 0 to 28
Password	Text	1 to 104,857,600 characters
Radio button	Text	1 to 104,857,600 characters
Readers	Text	1 to 104,857,600 characters
Rich Text	Binary to import images and attachments, Text to import text	1 to 104,857,600 bytes or 1 to 104,857,600 characters
Rich Text Lite	Binary to import images and attachments, Text to import text	1 to 104,857,600 bytes or 1 to 104,857,600 characters
Text	String	1 to 104,857,600 characters
Time zone	Date/Time	Jan 1, 1753 AD to Dec 31, 9999 AD (precision to nanosecond)

# APPENDIX B

## Error Messages

This appendix includes the following topic:

- [Designer Messages, 40](#)

## Designer Messages

### **The Designer failed to access the form.**

Explanation: The user associated with the connection does not have the privileges to access the form.

User Response: Verify that the user associated with the connection has the privileges to access the form.

-or-

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

### **The Designer failed to access the view.**

Explanation: The user associated with the connection does not have the privileges to access the view.

User Response: Verify that the user associated with the connection has the privileges to access the view.

-or-

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

### **The Designer failed to add menu item for PowerExchange for Lotus Notes.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

### **The Designer failed to connect to the Domino server.**

Explanation: The server name is not valid.

User Response: Verify that the server name is valid.

-or-

Explanation: The Designer was unable to access the server.

User Response: Verify that the server is accessible from the PowerCenter Client machine.

-or-

Explanation: The network is down.

User Response: Contact the system administrator.

**The Designer failed to create a column in the repository.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to create or open the XML file.**

Explanation: The Designer could not create or open the temporary LotusTempstarSchema.xml file.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to import a Lotus Notes source definition.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to import a Lotus Notes target definition.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to initialize a session with the Domino server.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to load default resource DLL, pmlnclntres409.dll.**

Explanation: The Designer could not find the pmlnclntres409.dll in the <PowerCenter Installation Directory>\clients\PowerCenterClient\client\bin directory.

User Response: Reinstall the Lotus Notes Client component, and restart the Designer.

**The Designer failed to retrieve fields in the form.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to retrieve the source table information from the repository.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to set the attribute for a column in the repository.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to set the business name for a column in the repository.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to switch the User ID file.**

Explanation: Either the User ID file or the password or both are incorrect.

User Response: Verify that the User ID file and password are valid.

**The Designer failed to terminate a session with the Domino server.**

Explanation: Internal error.

User Response: Contact Informatica Global Customer Support.

**The Designer failed to write to the XML file.**

Explanation: The Designer could not write to the temporary LotusTempstarSchema.xml file.

User Response: Contact Informatica Global Customer Support.

# APPENDIX C

## Glossary

**attachment**

A file contained in a document or a rich text field.

**document**

A data entity that is similar to a record in a relational database.

**form**

A template that defines the structure of a document. A form is similar to a table in a relational database. Forms can contain elements such as fields, text, and graphics.

**formula**

An expression that performs logical operations on the fields in a document.

**independent documents**

All documents in a Notes database including documents not associated with a form.

**multi-value field**

Fields in a document that can contain more than one value at a time.

**Notes database**

An .nsf file that contains documents and application code.

**User ID file**

A file that uniquely identifies a Lotus Notes user in the Lotus Notes environment.

**view**

A table-like structure that can contain fields from multiple documents. Views can group, index, and display documents based on a selection criteria.

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