

# Querying and Publishing on the Web

20-6240-0002



centura™

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*Querying and Publishing on the Web*

20-6240-0002

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# Preface

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*Querying and Publishing on the Web* provides detailed information on using Centura net.db to interactively create books using your Web browser to access database information.

In this preface, you find information about:

- What is in this manual
- Conventions used in the manual
- Other helpful resources
- How to send us your comments

## What is in this manual

*Querying and Publishing on the Web* is written for anyone using the Centura net.db product. This manual contains instructions for using Centura net.db, a querying and data publishing tool that does not require you to have any previous programming experience. This manual includes an overview of Centura net.db as well as installation and configuration instructions. It describes in detail the three Centura net.db components: Page Designer, Page Viewer, and Centura net.db Object Engine. Tutorials guide you through the process of creating books and pages using Centura net.dbs tools.

## Summary of chapters

This manual is organized into the following chapters.

1	<i>Introducing Centura net.db</i>	Product overview, installing Centura net.db, running on Windows NT, running on Windows 95, uninstalling Centura net.db, security issues
2	<i>Connectivity</i>	SQL.INI file, testing database connections, SQLBase connectivity, Oracle connectivity, cursor connections, cursor maintenance
3	<i>Centura net.db Components and Advanced Features</i>	Hardware and software architecture, Centura net.db Object Engine, Page Designer, Page Viewer, Centura net.db and HTML, Centura net.db and Java script, page validation script, Golden Armadillo book, frame and screen control, Centura net.db tokens
4	<i>Building a Single-table Book</i>	Building a book containing a single page
5	<i>Creating a Multi-table Book</i>	Creating a book with multiple pages using Centura net.dbs advanced features

## Notation conventions

The table below shows the notation conventions used throughout this manual.

Notation	Explanation
You	A user who reads this manual
User	The end-user of applications that you write
<b>bold type</b>	Menu items, push buttons, field names, items you select, and keyboard keys you press



Notation	Explanation
Courier 9	HTML language code and Java script examples
SQL.INI	Program names and file names
<b>Warning:</b>	Precaution
<b>Important:</b>	Vital information
<b>Note:</b>	Supplemental information

## Other helpful resources

**Centura net.db Online Help.** This is an extensive online help system in HTML. The online help offers a quick way to find information on fields and Centura net.db wizards.

**World Wide Web.** Centura Software's World Wide Web site contains information about Centura Software Corporation's partners, products, sales, support, training, and users. The URL is <http://www.centurasoft.com>.

To access Centura technical services on the Web, go to <http://www.centurasoft.com/support>. This section of our Web site is a valuable resource for customers with technical support issues, and addresses a variety of topics and services, including technical support case status, commonly asked questions, access to Centura's Online Newsgroups, links to Shareware tools, product bulletins, white papers, and downloadable product updates.

For information on training, including course descriptions, class schedules, and Certified Training Partners, go to <http://www.centurasoft.com/training>.

## Send comments to...

Anyone reading this manual can contribute to it. If you have any comments or suggestions, please send them to:

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or send email, with comments or suggestions to:

[techpubs@centurasoft.com](mailto:techpubs@centurasoft.com)



## Chapter 1

# Introducing Centura net.db

---

This chapter introduces Centura net.db. Topics include:

- Product overview
- Installing Centura net.db
- Running on Windows NT
- Running on Windows 95
- Uninstalling Centura net.db
- Security issues

## Product overview

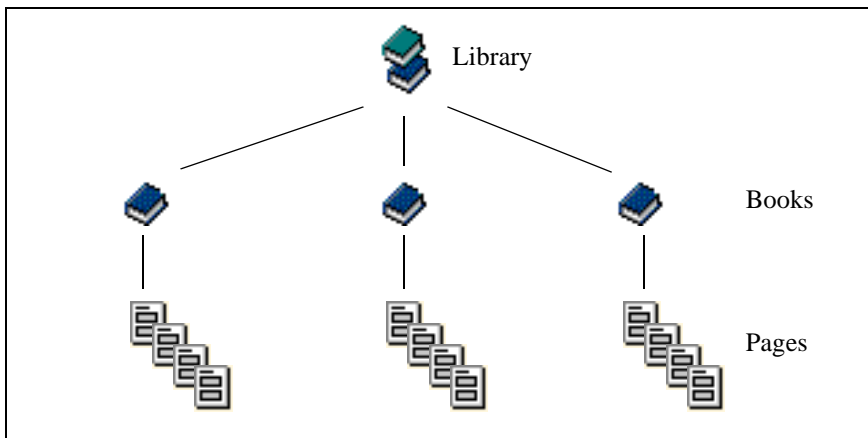
Centura net.db from Centura Software Corporation lets you effortlessly query, publish, and update database information on the World Wide Web without the need to do any programming.

In its simplest form, Centura net.db provides read-only access to data stored in a relational database, including images, charts, and data. In its most advanced form, Centura net.db is a Web-enabled application that allows you to create interactive Web pages where you can query, view, create, update, and graph data via a Web browser.

Centura net.db consists of three components, the Centura net.db Object Engine, and two CGI programs: Page Designer and Page Viewer. The .OBF file contains definitions for the HTML and database elements. The pages contains information for navigating between the database objects. The Centura net.db Object Engine reads this information at runtime and uses it to construct the HTML pages and the SQL statements for SELECT, Insert, Update, and Delete, as appropriate.

The Centura net.db Object Engine manages the connections of multiple users to the selected relational database. Page Designer provides you with the tools necessary to Web-enable a relational database for access via your browser. Using Page Designer, you create libraries, books, and pages. The runtime component, Page Viewer, enables you to interact with databases from within your browser using pages you create with the Page Designer.

Centura net.db uses the following structure for organizing data:



A library is a Web site that contains books and pages. A library can have as many books as you want, and is associated with a single database. A book is one or more pages, or graphs, that correspond to Web pages.

Configuring and using Centura net.db across the Internet/Intranet is accomplished via a Windows NT Web Server with CGI support, such as Netscape FastTrack or Microsoft Internet Information Server. No additional components are necessary, since tasks are done via a Web browser such as Netscape Navigator or Microsoft Internet Explorer. Centura net.db makes no special demands on the browser; the only requirement is that the Web browser must support JavaScript and frames.

Centura net.db currently supports connectivity to SQLBase 6.1.1 or later, Oracle 7.x or later, and SQL Server 6.x or later.

## Pre-installation considerations

### Software and hardware requirements

#### Software requirements

Before you install Centura net.db, please note the following software requirements:

- Win32 environment (Windows NT 4.0 or Windows 95)

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**Note:** Centura net.db for Windows NT supports development, testing, and deployment. Centura net.db for Windows 95 supports development and testing only.

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- Web browser

Centura net.db is compatible with Web browsers on any platform. The browser must support JavaScript and frames. Centura recommends Microsoft Internet Explorer 3.0 or higher or Netscape Navigator 3.0 or higher.

- Web server

Centura net.db requires a standard Internet Web server, such as Microsoft Internet Information Server 3.0 or higher or Netscape FastTrack 2.0 or higher. The Web server must support CGI (Common Gateway Interface).

- Database server (one of the following)

- SQLBase 6.1.1 or higher

Setup gives you the option of installing a time-lock single-user version of SQLBase 7.0 automatically during the Centura net.db installation process.

- Oracle 7.x

If using an Oracle database server, you must install it prior to installing Centura net.db. Read the Oracle installation documentation for more information. Centura net.db connects to Oracle via ODBC.

- SQL Server 6.x or later

If using a SQL Server database server, you must install it prior to installing Centura net.db. Read the SQL Server installation documentation for more information. Centura net.db connects to SQL Server via ODBC.

- Appropriate SQL.INI configuration

The SQL.INI file must contain the appropriate entries and keyword values. For more information, read *Connectivity Administrator* on page 2-4.

If you are connecting to an Oracle database, read *SQL.INI keywords (Oracle)* on page 2-15.

- 32-bit version of SQL\*Net

This software is required for Centura net.db to connect to Oracle. You must install SQL\*Net on the Web site server prior to installing Centura net.db. For more information, read *SQL\*Net* on page 2-12.

- SQLTalk

This software is available on the Centura net.db CD, and is not installed automatically by the Setup program. To install SQLTalk, double-click the SQLTalk file in the SQLTalk folder on the CD.

- 32-bit SQL Server client and ODBC driver

## Hardware requirements

Before you install Centura net.db, please note the following hardware requirements:

- 32 MB minimum RAM. 64 MB RAM is recommended for deployment.
- 5 MB disk space
- Pentium processor

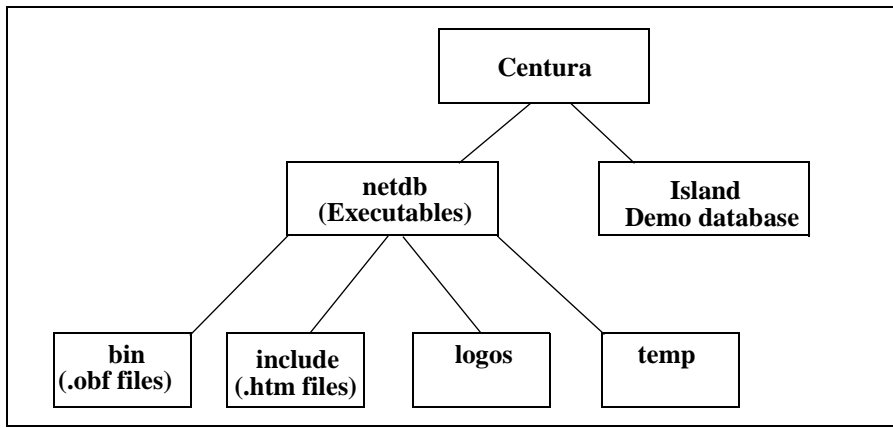
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**Note:** Prior to installing Centura net.db, you should install and test the above software. For connectivity information, read *Chapter 2, Connectivity*.

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## Directory organization

The Centura net.db directory structure is as follows:



The Centura net.db default home directory is *Centura*. If you use the default installation option, all Centura software is installed in this directory.

If you choose to install Centura net.db in a directory other than *Centura*, be sure to install future Centura server software products into that directory. This prevents the installation of multiple copies of common files which can cause version mismatch errors.

## Configuring your Web server

The Centura net.db installation varies depending upon the Web server you are using. The Setup program prompts you for your specific Web server and installs Centura net.db accordingly.

### CGI directory

Centura net.db consists of two CGI programs: Page Designer and Page Viewer. When installing Centura net.db, you must specify a directory that contains only Windows CGI programs.

#### **Netscape FastTrack**

If you are running Netscape FastTrack, the Centura net.db installer automatically detects the correct CGI directory. If CGI support is not enabled, install the Centura net.db programs into the following directory:

```
c:/netscape/server/bin/httpd
```

You must also configure the CGI directory to point to the Centura net.db executable. For example:

URL Prefix: cgi-bin

CGI Directory: c:/netscape/server/bin/httpd

---

**Note:** Netscape FastTrack uses forward slashes to comply with UNIX syntax.

---

### Microsoft Internet Information Server

If you are running Microsoft Internet Information Server, the Centura net.db installer automatically detects the correct CGI directory. If CGI support is not enabled, install the Centura net.db programs into the following directory:

```
c:\InetPub\scripts
```

### HTML files

Centura net.db uses a number of HTML and GIF files. These files are stored in different directories depending on the Web server you are running. The Centura net.db installer automatically installs the image files in the correct directory.

## Centura net.db HTML files

.HTM files must be located in:

```
/Installation-directory/include
```

to appear in the HTML header file and HTML footer file fields on the Page Properties formatting page.

## Centura net.db logo files

.JPG and .GIF files must be located in:

```
/Installation-directory/logos
```

This applies only to logo files. All other .GIF and .JPG files must reside in the Web Servers /doc directory.

You must restart your Centura net.db Object Engine after adding files to this directory or they will not appear in the Book Logo field on the Book Properties page.

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**Note:** Graphic files used within HTML script do not need to be stored in a particular location, since they are called by their relative path within your script.

---



## Upgrading from previous versions

If you are upgrading from a previous release of Centura net.db (formerly known as Quest/Web), we recommend you perform the following steps prior to installing version 1.1.1:

1. Backup the bin directory. This directory contains the Centura net.db book files (.OBF).
2. Uninstall the Quest/Web components. For instructions, read *Uninstalling Centura net.db* on page 1-17.
3. Install Centura net.db version 1.1.1. For installation instructions, read *Installing* on page 1-7.
4. Copy the backup bin directory files to the new bin directory.
5. Run the upgrade executable (upgrade.exe) to upgrade your book files. The upgrade.exe program is located in the /netdb directory.

## Installing

The Centura net.db Setup program guides you through the installation process.

Please note that the Centura net.db Object Engine does not need to be installed on the same machine as the other Centura net.db components. If you have more than one Web server, you can install the design-time and runtime components on each of them and use the same Centura net.db Object Engine.

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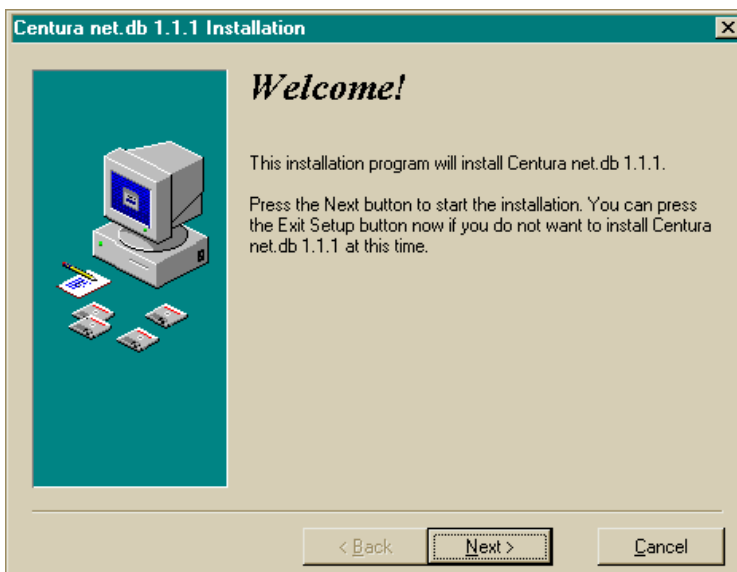
**Note:** If you are installing Centura net.db as a Windows NT service, you must provide a valid account name and password during installation. If you are installing Centura net.db as a service, we recommend you also install SQLBase as a service.

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### Installing Centura net.db software

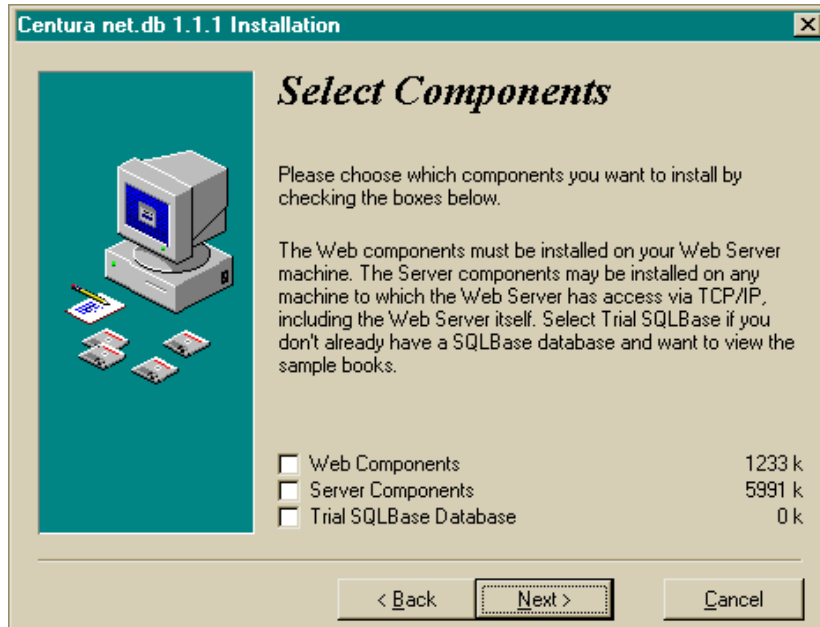
1. Insert the Centura net.db CD into the appropriate drive.
2. Double-click **My Computer**. Double-click on the appropriate drive where the SQLBase installation media resides. Double-click **Setup** to begin the installation process.

The **Welcome** dialog displays informational messages. Click **Next**.



3. The **Display License** dialog appears. Click **Yes** to indicate acceptance of the license agreement. If you click **No**, a dialog appears asking if you want to abort the installation.

4. The **Select Components** dialog appears. Select the Centura net.db components you want to install and click **Next**.



5. Use the **Web Server Type** dialog to tell Centura net.db which Web server you have installed on your machine.

If the installer has successfully located the Web server on your machine, it is preselected.

If your specific Web server is not listed as an option, select **Other**. Click **Next** after you have selected the appropriate choice.

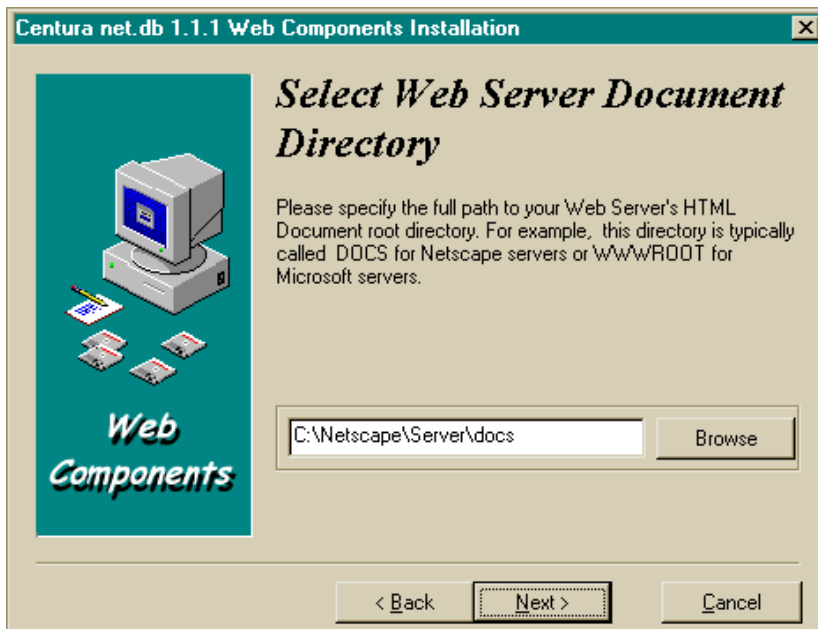


6. Installation for Centura net.db varies depending upon the Web server you are using. The **Select Web Server Executable Directory** dialog allows you to specify the full path to the directory where your Web server stores executable files.

Click **Next** after you have entered your Web Server executable directory or accepted the default.



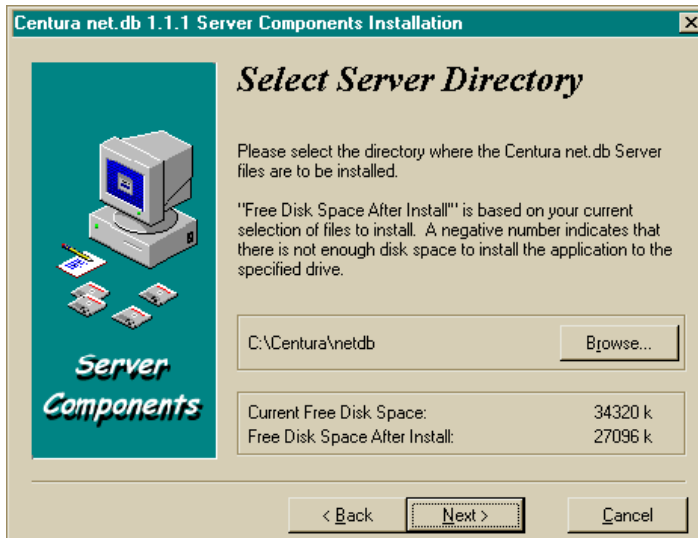
7. Use the **Select Web Server Document Directory** to specify the location of your Web Server's HTML document directory and click **Next**.



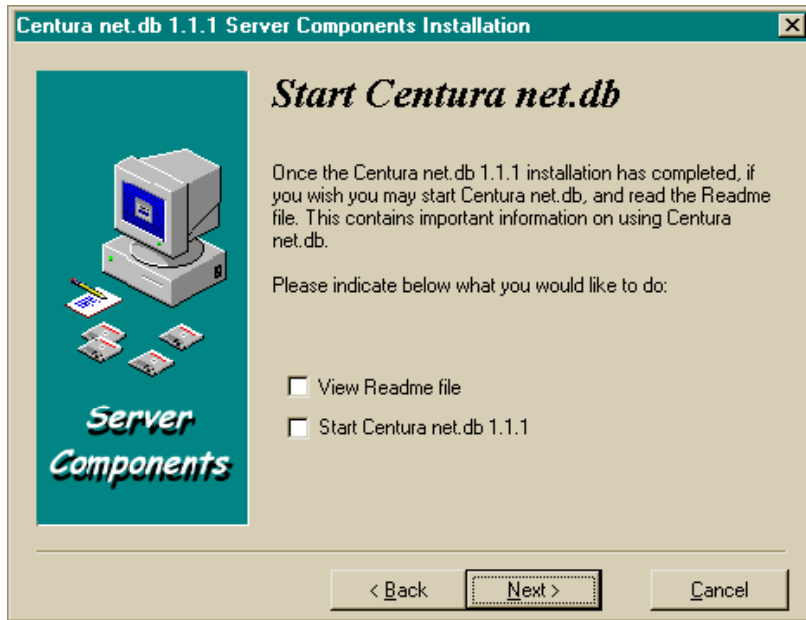
8. In the **Server IP Address** dialog, enter the IP address of the machine where Centura net.db will be running. Click **Next**.



9. Use the **Select Server Directory** dialog to specify the root path where you want to install the net.db server files. The default directory is C:\Centura\netdb. You can change the default directory at this time by clicking the **Browse** button and navigating to the directory you want to use. Click **Next** after you are select the directory.



10. The **Select Program Group** dialog allows you to specify the program group to where you want to add the Centura net.db icons. Click **Next**.
11. Use the **Start Centura net.db** dialog to indicate whether or not you want to start Centura net.db immediately after installation. You can also elect to display the Readme file after installation. Click **Next**.



12. The **Ready to Install** dialog appears. Click **Next** if you are ready to install SQLBase. Click **Back** if you want to go back to the previous screens in this installation and change your selections.

The installation program displays a progress indicator that informs you of the files being copied from the installation media to your hard drive.

13. The **Installation Complete** dialog displays after all of the files have been successfully copied to your machine. Click **OK**. You should save the installation media in a safe place.
14. The final **Install** dialog prompts you to restart our system to complete the installation process. Click **OK** to restart. Click **Cancel** to return to Windows without restarting your system.

For Windows 95, the restart updates the directory paths.

For Windows NT, the restart is necessary to invoke the NT service feature.

## Centura net.db Customization Utility

This Centura net.db Customization Utility (netdbcfg.exe) is located in the /netdb directory. Use this utility to customize the Designer Users and Timeout registry settings for Centura net.db.

### Designer Users screen

Use this screen to add authorized ids (usernames) of people who are to use the Centura net.db Page Designer component. Usernames must already exist in the database you use to create books.



### Timeout Period screen

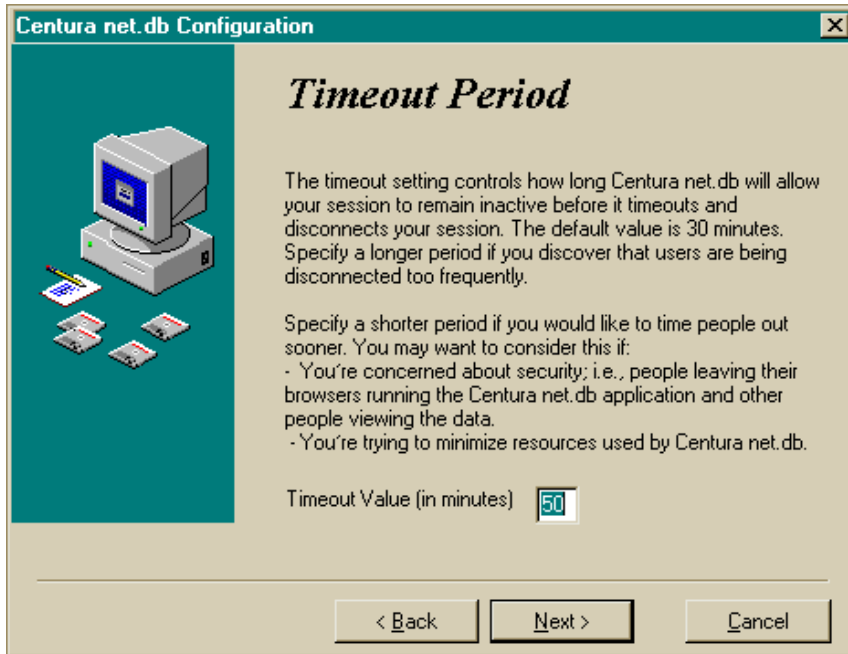
Use this screen to change the Centura net.db timeout settings. The timeout setting controls how long Centura net.db allows your session to remain inactive before it times out and disconnects your session. The default value is 30 minutes.

Specify a longer period if you discover that users are being disconnected too frequently.



Specify a shorter period if you would like to time people out sooner. You may want to consider this if:

- You are concerned about security, i.e., people leaving their browsers running the Centura net.db application and other people viewing the data.
- You are trying to minimize resources used by Centura net.db.



## Running Centura net.db on Windows NT

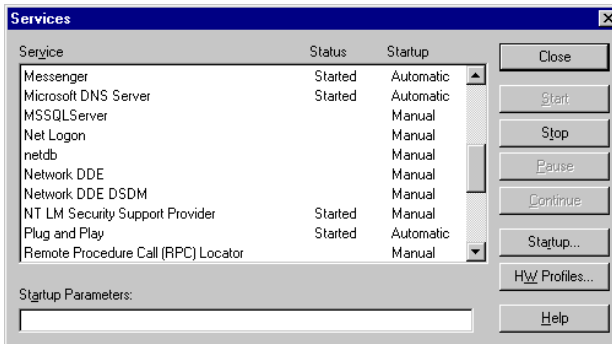
### Running as an NT service

Centura net.db Object Engine functions as a true Windows NT Service. Windows NT service programs run independently of the user, and can start either automatically or on demand. By default, the setup program installs Centura net.db as a console program.

### Starting and stopping the Centura net.db NT service

Once the installation process is complete, Centura net.db is running and ready to use. The Centura net.db service is set to start automatically when Windows NT initializes.

You administer the Centura net.db Object Engine using the **Services** module in the Control Panel. To start and stop the Centura net.db service, select Centura net.db from the Services list and change the startup mode from automatic to manual.



## Removing the Centura net.db NT service

To remove the Centura net.db NT Service, from the DOS prompt navigate to the Centura net.db directory and type:

```
netdb.exe remove
```

The following messages appear:

```
Stopping net.db.
net.db stopped.
net.db removed.
```

If you previously stopped the Centura net.db service using the Services module of Control Panel, you only receive the 'net .db removed' message.

The service is now stopped and is de-registered with the Service Control Manager.

## Reinstalling the Centura net.db NT service

If you have removed the Centura net.db service and want to reinstall it manually, go to the DOS prompt, navigate to the Centura net.db directory, and type:

```
netdb.exe install
```

This registers the service with the Service Control Manager. To complete the installation, go to the **Services** module of Control Panel and start the service.

## Running Centura net.db as a console application

To run Centura net.db as a console application under Windows NT, from the DOS prompt navigate to the Centura net.db directory and type:

```
netdb.exe console
```

Centura net.db is now running as a console application, with all of the product functionality of the service version. Diagnostic information is displayed when running Centura net.db as a console application.

## Running Centura net.db on Windows 95

To run Centura net.db as a console application under Windows 95:

1. Start your database server.
2. Select **Centura, Centura net.db Object Engine** from the **Programs** Group.
3. Select **Centura, Getting started with Centura net.db** from the **Programs** menu.

---

**Note:** Note that the above locations may be different, depending upon the directory and program group you selected during installation.

---

Centura net.db automatically runs as a console application, with all of the product functionality of the service version.

## Uninstalling Centura net.db

To uninstall Centura net.db, use **Add/Remove Programs** located in Window's Control Panel.

1. Select **Settings, Control Panel, Add/Remove Programs** from the **Start** menu. The Add/Remove Programs Properties dialog appears.
2. Highlight **Centura net.db 1.1 Web Components** on the Install/Uninstall tab. Click the **Add/Remove** push button to remove the web components from your system. The Remove Programs From Your Computer dialog appears.

The uninstall program removes the software and its components. A status bar indicates if the program has been completely uninstalled.

3. Highlight **Centura net.db 1.1 Server Components** on the Install/Uninstall tab. Click the **Add/Remove** push button to remove the server components from your system. The Remove Programs From Your Computer dialog appears.

## Security Issues

To run Centura net.db, you must first log on to the database you want to access and have authority on that database. Security is on an individual database level. For example, you may have access to one database but have authority to build applications on another.

To use the Page Viewer, your access depends on the permissions you have on individual tables. Consult your database administrator if you are not a valid user of a database and require authority.

To prevent outside users from modifying Books, you can remove the Page Designer (ndauthor.exe) from your public Web site and reinstall it on a machine inside your corporate firewall.

To maintain security between the browser and Web server, use browsers and Web servers that support industry-standard security mechanisms such as Secure HTTP (S-HTTP) and Secure Sockets Layer (SSL). You can use firewalls and third-party products to protect your data.

## Chapter 2

# Connectivity

---

This chapter describes how to configure Centura net.db to connect to SQLBase and Oracle databases. Topics include:

- SQL.INI file
- Testing database connections
- SQLBase connectivity
- Oracle connectivity
- Cursor connections
- Cursor maintenance

## Connectivity overview

Centura net.db supports a number of databases, including SQLBase and Oracle. Prior to connecting Centura net.db to a database, you need to perform the following tasks:

- Verify that you have a user account with the correct privileges on the database.
- Use the Connectivity Administrator to configure the SQL.INI file according to the protocol you are using to access your database. You only need to do this the first time you connect to the database.
- Using the appropriate tools provided by the database vendor, verify that you can connect to the database server from the machine running the Centura net.db Object Engine and the Web server.
- Verify that the Web server is running.
- Start the Centura net.db Object Engine.

## Centura net.db registry keys

When Centura net.db starts, it checks the Centura net.db registry keys for configuration information. These registry keys are populated during installation. You do not need to edit the majority of the registry keys. Typically, the only two keys you need to edit are designerUsers and timeOut. To edit these keys, use the Centura net.db Customization Utility. For more information, read *Centura net.db Customization Utility* on page 1-14.

## Centura net.db Server (Object Engine) registry keys

This table is for reference only. These keys are stored in the following location:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Centura\netdb\Server Components

Name	Description	Example
binDir	Book directory	c:\centura\netdb\bin\
buildNum	Our build number	11409
designerUsers	Comma-delimited list of designer users	SYSADM, SYS, SA
includeDir	Include directory	c:\centura\netdb\include\
licenseNum	License key number	1234-12345678
logoDir	Logo directory	c:\centura\netdb\logos\

Name	Description	Example
ptfLevel	Current PTF level, empty if none	
registeredCompany	Your company name.	Centura Software
registeredUser	User name	John Smith
resourceURL	Web Resource URL	/netdb/
tempDir	Temp directory	c:\centura\netdb\temp\
timeOut	Timeout in integer minutes	30
versionNumber	Version number	1.1.1
workingDir	Working directory	c:\centura\netdb\

## Centura net.db Web Server Interface registry keys

This table is for reference only. These keys are stored in the following location:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Centura\netdb\Web Components

Name	Description	Example
buildNum	Our build number	11409
docDir	net.db WWWRoot directory	c:\centura\netdb\bin\
exeDir	CGI-BIN directory	c:\centura\netdb\include\
licenseNum	License key number	1234-12345678
ptfLevel	Current PTF level, empty if none	
registeredCompany	Registered company name	Centura Software
registeredUser	Registered user name	John Smith
serverIP	Centura net.db server machine IP address or Internet name	127.0.0.1
versionNum	Version number	1.1.1

## Connectivity Administrator

The Connectivity Administrator lets you edit your SQL.INI file, easily adding databases and routers using just a few dialogs. Using this tool, you can set the configuration for SQLBase Server, including:

- Setting up the options for a SQLBase server
- Enabling and disabling communication protocols
- Modifying the listening protocols of a database name
- Adding or removing a database name
- Viewing a list of database names

The Connectivity Administrator detects all software installed on your computer, including network protocols and configurations. The automated configuration also sets simple and advanced parameters of the database server.

---

**Note:** You can configure connectivity for both your client and server during the same Connectivity Administrator session.

---

## Using the Connectivity Administrator

1. Click the **Server** tab to show the installed server.
2. Click the + symbol next to the server name to display listening protocols and databases.

The following actions are available when using the Connectivity Administrator.

- Left-click to select an item
- Double-click to change properties
- Right-click to display a menu of connectivity functions

For detailed information about the Connectivity Administrator, read the online help that is provided with this tool.

## SQL.INI file

Every Centura connectivity product accesses the SQL.INI file upon initialization to obtain configuration information about database connectivity. The default installation directory for Centura products is *Centura*.

By default, all Centura products are installed in the *Centura* directory. If you have installed other Centura products on your machine, a SQL.INI file already exists. If you install Centura net.db in the same directory as other Centura products, the



installation program adds new statements or modifies existing statements in the file. If you install Centura products into different directories, you may have multiple copies of this file.

If you are using Centura net.db against Oracle databases, you must manually configure the SQL.INI file. For information on configuring the SQL.INI file for Oracle, read *SQL.INI keywords (Oracle)* on page 2-15.

## SQL.INI search path

When Centura net.db starts, it checks the registry key for SQLBase to obtain the location of the SQL.INI file. The common registry locations for SQLBase to retrieve its operational parameters, whether it is running as a service program or as an application program, are:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Centura\SQLBase\1  
HKEY_LOCAL_MACHINE\SOFTWARE\Centura\SQLBase\2
```

## SQL.INI structure

SQL.INI is a simple text file you modify using any ASCII text editor.

The SQL.INI file is divided into sections, each starting with a section identifier enclosed in square brackets. Each section of SQL.INI contains keywords and values in the following format:

```
[section identifier]  
keyword=value1,value2,...
```

where *keyword* is the parameter name and *value* is its setting.

A default value for a SQL.INI keyword is either the value as defined in the SQL.INI file before it has been edited or the value when the entry containing the keyword is absent or commented out.

The order of the sections in the file is not significant. For most sections, the order of keywords within a section is also not significant. The only exception is the order of the `comdll` keywords in the `[win32client.dll]` section, and the order of the `remotedbname` keywords in the sections assigned to each individual database. When a Centura application initializes, it tries to make a connection to a database following the order of the connectivity libraries listed using the `comdll` keywords. For each router, the application tries to connect to a database in the order specified by the appropriate `remotedbname` keywords.

## Editing SQL.INI

You should consider the following when editing the SQL.INI file:

- List parameters for a keyword in the order indicated in the Syntax section of the reference page for that keyword. Parameters may be ASCII alphanumeric characters only—no underscores, hyphens, or periods.
- Carefully check the syntax of a keyword statement. You must use commas, not spaces, to separate parameters.
- Put each statement on one line. Inserting carriage returns or any “end-of-line” markers in the statement can cause errors.
- Put comments on their own lines rather than placing comments on the same lines as keyword statements. Use a semi-colon (;) as the first character of the comment line.

A Centura application reads the SQL.INI only when it initializes. To force an application to see any changes you make to the file, you must stop or exit from all Centura software running on the client, stop the Centura net.db service, then restart the application. For instructions on stopping the Centura net.db service, read *Chapter 1, Introducing Centura net.db*.

If you are using a word processing application to edit the SQL.INI file, you must save the file as text only. Otherwise, the application inserts control codes that corrupt the file.

For information on editing the SQL.INI file for Oracle, read *SQL.INI keywords (Oracle)* on page 2-15.

---

**Important:** The SQL.INI file must always have at least one `comdll` statement identifying the connectivity library to be used when connecting to a database. Centura net.db only uses the Win32 client section (`win32client.dll`) of the SQL.INI file.

---

## Testing database connections

If Centura net.db has trouble connecting to the database, you can test your connectivity to the target database using the tools provided by your database or other vendor. For SQLBase databases, use SQLTalk. For Oracle databases, use the Oracle connectivity tools.

If you are still having problems, check the `[win32client.dll]` section of the SQL.INI file to verify the `comdll` statement is correct.

### Testing the connection with SQLTalk

1. Start SQLTalk for Windows by running the executable file `sqltalk.exe` from the Centura net.db CD or a pre-existing installation.
2. Select **Session, Connect** from the SQLTalk for Windows menu bar to display the Connect dialog box. Fill in the database name, user name, and password.
3. Verify that the connection information appears in the *Current Connections* box of the Connect dialog box—this confirms that you have successfully connected to the database. Click **Close** in the Connect dialog box.
4. Select **File, Exit** from the SQLTalk for Windows menu bar.

If you see the connection information in the *Current Connections* box of the Connect dialog box, you have correctly configured your client machine to communicate with the Centura net.db target database.

## Connecting to SQLBase

SQLBase Server is a multi-user database server that runs on Windows 95, Windows NT, and NetWare 3.x and 4.1. SQLBase is licensed based on concurrent user connections and comes in the following user bands: 5-, 10-, 25-, 50- and unlimited users.

For detailed information on installing and configuring SQLBase, read the *SQLBase Starter Guide*. This book is available for download on our Web site: [www.centurasoft.com/products/](http://www.centurasoft.com/products/).

## Starting and stopping the server

### Windows 95

This section describes how to start and stop the SQLBase Server for Windows 95. You must start the database server before clients can access a database, with the exception of Anonymous Pipes protocol which can automatically start a SQLBase Server on the same machine.

## Starting

To start the server, do one of the following:

- Navigate to the SQLBase directory and double-click on the SQLBase icon.
- Select **Run...** from the **File** menu and enter the path and SQLBase executable name. For example:

```
c:\centura\dbnt1srv
```

Click **OK**.

- Select the Program Group where you installed the SQLBase Software from the **Start** menu, and **SQLBase 7.0 1-User Server**. This menu item changes depending upon the server installed.

## Stopping

It is recommended that you disconnect all users prior to stopping SQLBase. If however, users are still connected when you stop the server, SQLBase automatically performs recovery on these databases during the next connection. If RECOVERY is set to off, SQLBase will be unable to recover.

To stop SQLBase Server do the following:

- Select **File, Exit** from the SQLBase menu bar.
- Close the SQLBase Server window.
- Programmatically shut down the server using either SQLTalk or using the SQLBase API. For information on the SQLBase API, read the *SQLBase SQL Application Programming Interface Reference*.

## Windows NT

This section describes how to start and stop the SQLBase Server for Windows NT.

### Starting

If you choose to run SQLBase Server as a Windows NT service program, you should use SQLBase Server Monitor or the Windows NT Service Manager to make sure SQLBase is enabled to run as a service. For more information, read the *SQLBase Database Administrator's Guide*. You can choose to start SQLBase automatically during Windows NT initialization. You can also manually start SQLBase as a service by doing one of the following:

- Click the **Start SQLBase** button on the SQLBase Server Monitor toolbar.
- Select **File, Start SQLBase** from SQLBase Server Monitor.
- Use the Windows NT Service Manager.

For more information on running SQLBase Server as a service program, read Chapter 13 of the *SQLBase Database Administrator's Guide*.

To start SQLBase as an application program, do one of the following:

- Navigate to the SQLBase directory and double-click on the SQLBase icon.
- Select **Run...** from the **File** menu and enter the path and SQLBase executable name. For example:

```
c:\centura\dbnt1srv
```

Click **OK**.

- Select the Program Group where you installed the SQLBase Software from the **Start** menu, and **SQLBase 7.0 1-User Server**. This menu item changes depending upon the server installed.

---

**Note:** Centura recommends that you configure SQLBase to run as a service. Otherwise, you will need to manually restart SQLBase after NT reboots.

---

## Stopping

### When running SQLBase as a Windows NT service program

It is recommended that you disconnect all users prior to stopping SQLBase. If however, users are still connected when you stop the server, SQLBase automatically performs recovery on these databases during the next connection. If RECOVERY is set to off, SQLBase will be unable to recover.

To stop SQLBase Server do one of the following:

- Click the **Stop SQLBase** button on the SQLBase Server Monitor toolbar.
- Select **File, Stop SQLBase** from SQLBase Server Monitor.
- Using the Windows NT Service Manager.
- Select **File, Exit** from the SQLBase menu bar.
- Close the SQLBase Server window.
- Programmatically shut down the server using either SQLTalk or using the SQLBase API. For information on the SQLBase API, read the *SQLBase SQL Application Programming Interface Reference*.

### When running SQLBase as an application program

It is recommended that you disconnect all users prior to stopping SQLBase. If however, users are still connected when you stop the server, SQLBase automatically performs recovery on these databases during the next connection. If RECOVERY is set to off, SQLBase will be unable to recover.

To stop SQLBase Server do one of the following:

- Select **File, Exit** from the SQLBase menu bar.
- Close the SQLBase Server window.
- Select **File, Exit** from the SQLBase menu bar.
- Close the SQLBase Server window.
- Programmatically shut down the server using either SQLTalk or using the SQLBase API. For information on the SQLBase API, read the *SQLBase SQL Application Programming Interface Reference*.

## SQLBase locking strategy

Since a large number of Internet browsers may access the Centura net.db Object Engine simultaneously, Centura net.db uses a locking strategy that maximizes concurrency without compromising data consistency. For this reason, Centura net.db employs an optimistic locking strategy that makes certain locks are applied and removed instantaneously without user intervention.

SQLBase supports an optimistic locking strategy called Release Locks. Centura net.db connects to SQLBase using RL isolation level and uses the native ROWID provided by SQLBase to determine whether a previously selected record from a result set (which does not have a shared lock on it) has been updated or deleted by another user.

## ODBC support

Centura net.db supports connectivity to Oracle and SQL Server databases through ODBC. During runtime, Centura net.db communicates with ODBC datasources using the Centura ODBC router (sqlodb32.dll) and the SQL/API. During design time, Centura net.db uses a Centura ODBC/C API and native ODBC connectivity.

Prior to adding databases using Centura net.db, you must configure the datasource using the ODBC Datasource Administrator located in the Control Panel. You must restart Centura net.db after adding new Data Source Names (DSNs) so that it can automatically add the appropriate entries to the SQL.INI file. ODBC supports DSNs up to 32 characters in length. You can also manually update [win32client.dll] section of the SQL.INI file. For ODBC support, you must have a value of comdll=sqlodb32. For information on configuring this section of the SQL.INI file, read *SQL.INI keywords (Oracle)* on page 2-15.

To test connectivity to databases via ODBC, use a testing tool such as Microsoft Query. If you have a DSN named "Island" and a SQLBase database named "Island",

Centura net.db attempts to connect to the DSN via ODBC over the SQLBase database.

---

**Note:** Connectivity to SQLBase uses the native Centura router. For information on connecting to SQLBase, read *Connecting to SQLBase* on page 2-7.

---

## Modifying the registry for alternate logins

If you are logging into an ODBC datasource using a login other than sysadm, sys, or sa, you must add the login to the designerUsers key in the registry. This key is stored in the following location:

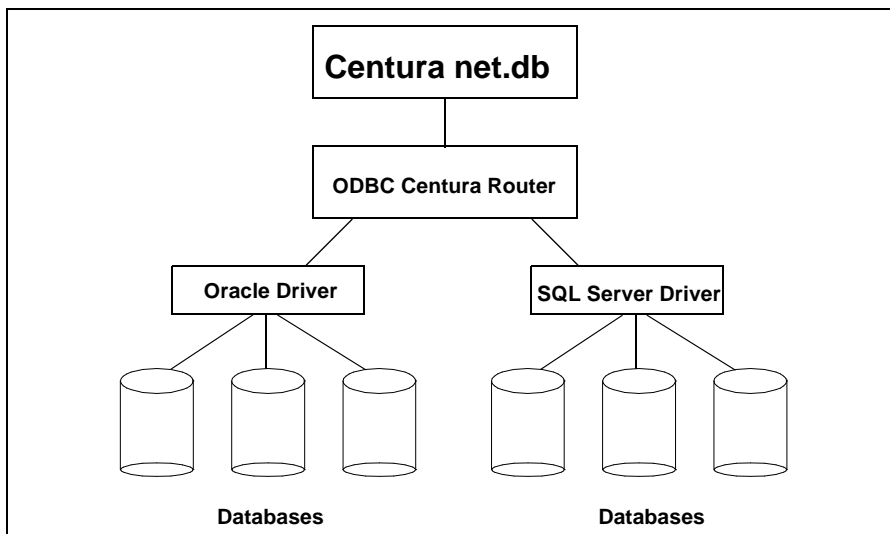
HKEY\_LOCAL\_MACHINE\SOFTWARE\Centura\netdb\Server Components

To add a login to the list, use regedit and extend the comma-delimited list as follows:

Original value: sysadm, sys, sa

Modified value: sysadm, sys, sa, system

Note that there are no spaces after each value.



*Centura net.db ODBC Architecture*

## Connecting to Oracle

This section describes how to connect Centura net.db to Oracle databases. Oracle connectivity is via ODBC. For information on ODBC, read *ODBC support* on page 2-10.

### Modifying the Registry

To allow your Oracle client-side software (OCI libraries and SQL\*Net) to work together properly, you must modify the Oracle section of your Windows NT or Windows 95 Registry. For Oracle version 7.x, add the following entry to the Registry if you are having trouble connecting:

```
ORAOCI=ORA73.DLL
```

For more information on connectivity, read *Connecting Centura Objects to Databases*.

### SQL\*Net

For Centura net.db to connect to Oracle, the 32-bit version of SQL\*Net must be installed and pointed to by an entry in the PATH environment variable. Centura net.db supports SQL\*Net version 1.x and later.

If Centura net.db is being run as an NT service, note that an NT service can be started as if run by a particular user. You must make sure that the user in question has an entry for SQL\*Net in her path. Just having a SQL\*Net entry in your path does not work.

For more information on running Centura net.db as an NT service, read *Centura net.db Customization Utility* on page 1-14.

If you have problems with connectivity, you can test your connectivity using Oracle connectivity tools or SQLTalk.

### Autocommit

Commit relates to the grouping of server actions so that all of the actions are made permanent in the database if and only if they are all successful. The set of such actions constitutes a transaction.

Since a large number of Internet browsers may access the Centura net.db Object Engine simultaneously, Centura net.db uses a locking strategy that maximizes concurrency without compromising data consistency. For this reason, Centura net.db employs an optimistic locking strategy that makes sure locks are applied and removed instantaneously without user intervention. The Centura net.db Object Engine administers locks for all data manipulation automatically and requires no extra assistance from the database. It does not require that Autocommit features are



switched on. Autocommit is off by default. From a Centura net.db perspective, there is no need to switch it on.

## Cursor Context Preservation

The Centura net.db Object Engine administers the connection of multiple users to the Oracle database. It is important that each user's result sets are protected from other user's transactions. The Centura net.db Object Engine appears as one user to Oracle, even though Centura net.db is managing the connections for multiple client browsers. Centura net.db maintains result set integrity through commits, using Cursor Context Preservation. All cursors that Centura net.db uses to create result sets are specifically defined as having Cursor Context Preservation switched on. This prevents a commit of another cursor from affecting the result set.

## Empty strings

If you try to insert the empty string into a varying-length character string column or try to update such a column with the empty string, the database stores NULL instead.

## Isolation levels

A large number of Internet browsers may access Centura net.db simultaneously. To prevent uncommitted locks on the database, Centura net.db makes certain that locks are applied and removed instantaneously without the possibility of intervention. The Centura net.db Object Engine administers locks for all data manipulation automatically and requires no extra assistance from the database.

Oracle does not support isolation levels. Instead, it uses a locking strategy similar to cursor stability. In this mode, Oracle allows versioned reads, creating result sets without applying any locks to the database optimizing user concurrency.

Centura net.db manages locks when updating and manipulating data to ensure locks cannot be left on the database if a user exits from the browser abruptly. This is done automatically using the following technique:

1. User selects the result sets using a standard SELECT statement. This applies no locks to the result set.
2. When a user drills down to a specific row for update, Centura net.db does another STANDARD SELECT (no locks are applied) and makes a copy of the record.

3. When the user applies the update, Centura net.db re-selects the record and applies an update lock by using the syntax `SELECT FOR UPDATE NOWAIT`. For example:

```
select customer_id, name
   from BROWSER.CUSTOMER
  where customer_id = 100
  for update nowait;
```

4. If this select succeeds, Centura net.db:

Check the copy of the old record with the one we just selected  
If old and new copies match then

```
-----          Do Update
-----          COMMIT
-----  Else signal error and ROLLBACK
--      If the SELECT FOR UPDATE FAILS we get:
        Error: ORA-00054: resource busy and acquire with NOWAIT
           specified
        SO... Tell the User that the record is in use and let
           them try again later.
```

5. Between applying the lock and committing, or rolling back, there is no possible user intervention. The lock is applied and removed almost instantaneously.

Oracle does not support setting isolation levels if an application uses dynamic, rather than static, SQL. You cannot set isolation levels when connected to an Oracle database, however you can affect data consistency and concurrent access to data by doing one of the following:

- Lock the entire table with the `LOCK TABLE` statement.
- Lock certain rows with the `SELECT...FOR UPDATE` statement.

Locking an entire table is risky. Only the user who has locked the table can perform any operations on the table until it is unlocked. Even if the application locks the table for only a short period of time, it may negatively impact other users.

Locking only certain rows during a transaction is more selective and allows other users to access all data in the database except for the locked rows. However, if the user who has the lock takes a long time to complete the transaction, all other users who need to access that data are forced to wait.

## Result set mode

Oracle does not support bi-directional scrolling cursors within its result sets. Although you are able to scroll forward through a result set by issuing a `fetch next` type of command, you cannot scroll backwards by issuing a `fetch previous` type of command.

When you create a result set in an Centura net.db book, you can scroll both forward and backward through the records by clicking on the respective scroll bar icons. The Centura net.db Object Engine supports bi-directional scrolling by switching on result set mode.

The current version of Centura net.db supports bi-directional scrolling by creating front end result sets. These files have a `.frs` extension and are located in the `/netdb` directory. These files are typically deleted automatically, although they may not be deleted if you exit the browser abruptly. You should explicitly delete these files during routine file administration.

## SQL.INI keywords (Oracle)

This section describes SQL.INI keywords you use when connecting a Centura application to an Oracle database.

For more information on the SQL.INI file, read *Connectivity Administrator* on page 2-4.

---

## comdll

---

This keyword identifies the SQLRouters available between Centura net.db and the database.

Section	<code>[win32client.dll]</code>
Syntax	<code>comdll=communication_dll_name</code>
Description	This keyword identifies the filename of a SQLRouter DLL. You can put more than one <code>comdll</code> statement in the SQL.INI file. Use the value <code>sqlodb32</code> in the <code>communication_dll_name</code> for ODBC support. Note that <code>sqlodb32</code> must come first in the list of dlls.
Example	<pre>comdll=sqlodb32 comdll=sqlws32 comdll=apipe</pre>

---

## fetchrow

---

This keyword specifies the maximum number of rows SQLRouter/Oracle retrieves per network message during cursor operations (fetching) on a result set.

Section [oragtwy]

Syntax `fetchrow=number_of_rows`

Default 20

Description *number\_of\_rows* must be a positive integer (but do not put a plus sign).

The server uses an array to hold the fetched column values. SQLRouter/Oracle retrieves rows for each network fetch requested, according to the following algorithm:

1. Take the width of the widest column and divide it into the maximum size of the array buffer.
2. If the calculated value is smaller than the value of `fetchrow`, use the calculated value.
3. Otherwise, use the value of `fetchrow`. If no value is defined, use the default value of 20.

The value assigned to `fetchrow` is not used if:

- You use the FOR UPDATE clause in a SELECT statement (CURRENT OF *cursor*).
- You specify a LONG column in the SELECT list.

You can improve performance by assigning a suitable value to `fetchrow`. To achieve good performance, you must balance the number of rows per fetch (which increases the memory used) against the operating system's need for memory (which causes the operating system to swap memory when not enough is available).

Example This example indicates that you want to retrieve only 10 rows with each fetch.

```
fetchrow=10
```

This example indicates that you want to fetch only a single row (in effect, disabling the feature).

```
fetchrow=1
```

---

## longbuffer

---

This keyword specifies the maximum number of bytes of long data type columns to retrieve or send, and truncates excess bytes.

Sections [oragtwy]

Default Oracle7—2 gigabytes

---

**Note:** Centura net.db only supports Oracle7.x.

---

Syntax `longbuffer=number_of_bytes`

Description Reduce the value of this keyword to conserve memory or reduce network traffic. If you use `longbuffer` to limit the number of bytes to retrieve, the retrieved data is truncated. To avoid truncating long data, set the value equal to the largest data type size that your applications need to read.

The `longbuffer` keyword applies to all databases defined in [oragtwy] section. You cannot specify a `longbuffer` value larger than the maximum size for the data type to be retrieved.

Example `longbuffer=2000`

---

## nodefparse

---

Use this keyword to enable or disable deferred parsing.

Sections [oragtwy]

Default no

Syntax `nodefparse={yes|no}`

Description This keyword (a shortened form of “no deferred parse”) enables or disables deferred parsing.

SQLRouter/Oracle uses deferred parsing for improved performance at runtime. However, deferred parsing makes debugging more difficult because the router cannot return the position of a column that may have generated an error.

You should especially disable deferred parsing when debugging complex SQL statements with many columns in the result set. If deferred parsing is disabled and an error is raised, the cursor automatically highlights the offending column in the result set.

When you put an application into production, you should enable deferred parsing.

Example This example disables deferred parsing.

```
nodefparse=yes
```

---

## remotedbname

---

Use this keyword to specify database names and their associated connect strings.

Section [oragtwy]

Syntax `remotedbname=db_name , connect_string`

Description *db\_name* specifies the database from the Centura net.dbs perspective. The name cannot be more than 8 characters.

For SQL\*Net 1.x, the available protocols is:

- ora1 @T:F — TCP/IP

---

**Note:** Where F is the service name label in the Oracle file TSNames.INI, this label is set up Oracle's SQL\*Net configuration process.

---

For SQL\*Net 2.x, the available protocols are:

- ora1 @TNS:ora1 — TCP/IP

---

**Note:** *connect\_string* must be set to @T, since Centura net.db only supports TCP/IP.

---

The *connect\_string* value must match the definition expected by the server. In other words, use the same string you would use with SQL\*Plus to connect to the database.

For example, when you connect to a database over TCP/IP, you enter the following using SQL\*Plus:

```
username / password@T : host_name : system_id
```

The part beginning with @T: through the end of the line is what you would put for *connect\_string* in the `remotedbname` statement.

You can also specify the connect string in an Oracle setup file:

- ORACLE7 — tnsnames.ora

---

**Note:** Centura net.db only supports Oracle7.x.

---

Specify the actual connect string with either the `local` or `remote` Oracle keyword, and use the appropriate alias as the value for *connect\_string* in the

`remotedbname` statement. The Oracle runtime library replaces `local` or `remote` with the connect string you specified in the Oracle setup file.

The information above applies to SQL\*Net 1.x. This version of SQL\*Net forces you to know the protocol, the host name, and sometimes the service ID of the database you want to connect to.

For Oracle SQL\*Net 2.x, you only have to know the logical name of the database. The `connect_string` value then has the syntax:

```
@logical_id
```

or possibly:

```
@TNS:logical_id
```

where `logical_id` is defined in the Oracle file `TNSNAMES.ORA` as the service name.

## Example

This example assumes you are using SQL\*Net 2.x. It specifies an Oracle database called `ACCOUNT`, with the Oracle `SID=FIRST`, on a server connected to the client machine using TCP/IP. The database name on the client side is `DEMO`. It assumes the service name is labelled `F` in the Oracle file `TNSNAMES.ORA`.

For SQL\*Net 1.x:

```
remotedbname=DEMO,@T:ACCOUNT:FIRST
```

For SQL\*Net 2.x:

```
remotedbname=DEMO,@TNS:F
```

This example specifies the same database; however, the SQL\*Net connect string has been defined in an Oracle setup file, which is referenced in the `SQL.INI` with the Oracle keyword `local`.

```
remotedbname=DEMO,local
```

---

**Note:** If the first version of the `remotedbname` statement does not work, you should try the second (with the string `TNS` after the `@` character).

---

Refer to the Oracle documentation for more information about `CONFIG.ORA`, `TNSNAMES.ORA`, and `ORACLE.INI` and how to set up these files.

---

## substitute

---

Use this keyword to specify that the string in the first parameter should be replaced by the string in the second parameter whenever the first parameter appears in an SQL statement.

Section [oragtwy]

Syntax `substitute=original_string, substitute_string`

Description You can have an unlimited number of `substitute` statements in the initialization file. However, this statement changes all occurrences of the replaced word in your SQL statements: operators, WHERE clauses, object names, and literals (but not bind variables).

The second string can include the first, as in:

```
substitute=od, odd
```

---

**Important:** The strings can include embedded blank spaces, but not commas—you must use a comma to separate *original\_string* from *substitute\_string*.

---

Notes Because each SQL statement is parsed, having `substitute` statements in your SQL.INI file adds a small amount of overhead to the compilation of those statements. If you are not running any Centura software that requires substitution, you might want to remove these statements from the file.

Example This example replaces double quotes, which Oracle does not accept, with nulls. This statement would be useful to run a program or tool you cannot modify that executes in the Centura runtime environment and that in certain contexts places double quotes around names it sends to the database. The statement causes SQLRouter/Oracle to strip off the double quotes before it sends the data to the database.

```
substitute=" ,
```

## Cursor connections

Centura net.db uses a pool of cursors that it shares among the many browsers it supports. The maximum number of cursors Centura net.db can concurrently connect to a database is hard-coded at 255. Centura net.db makes a distinction between result set cursors and dml cursors. Result set cursors preserve their state across browser calls. Dml cursors are actioned and committed at a single point of call and are stateless.

One of the most difficult things to handle within a browser is the ability for the user to create a result set, keep the result set open, and then go on to create other result



sets. The user expects to be able to scroll up and down the result set in the Centura net.db browse screen and use the standard back button to return to, and scroll, an older result set. Centura net.db supports this behavior by maintaining state information for each user's result set cursors. Some limits are applied to keep the Centura net.db Object Engine from exhausting the resources of the database.

Centura net.db solves this problem by having a finite pool of cursors currently set to a maximum of 255. If a user needs to create a result set and a cursor is available, then that cursor is connected and used. If all 255 result set cursors are already connected, Centura net.db finds the least recently used cursor and re-uses it.

If the Centura net.db Object Engine is under maximum load, an idle user returns to an old result set using the standard back button. Instead of being able to scroll through the browse screen, the user receives an error message stating that the connection has been taken by another user. The user can recover from this by re-issuing the search criteria that created the result set in the first place.

Since the Centura net.db Object Engine administers the connections of many users to the database, it is important that each user's result sets are protected from another user's transactions. This prevents the result set from being invalidated because another user commits a transaction.

To the database, the Centura net.db Object Engine appears to be a single user, even though the Centura net.db Object Engine clearly administers the connections on behalf of many client browsers. It is essential that Centura net.db maintains result set integrity through commits. To achieve this, it uses Cursor Context Preservation. For information on how Oracle handles Cursor Context Preservation, read *Cursor Context Preservation* on page 2-13.

All cursors that Centura net.db uses to create and maintain result sets are defined as having Cursor Context Preservation switched ON. This ensures that another cursor's commit does not effect the result set in any way.

## Cursor maintenance

The client browser can potentially have a number of cursors connected to a database, for which Centura net.db is maintaining state information.

Cursors are a resource. Each time one is used, it is time stamped. This time stamp helps Centura net.db implement its Least Recently Used (LRU) algorithm when cursors become scarce. The time stamp is also used to time-out inactive browsers. If a client sits with idle connections to Centura net.db and does not issue calls to the Centura net.db Object Engine, they are wasting both Centura net.db and the database resources. Centura net.db employs a background thread that checks if a user has been idle for the period defined in the registry. If so, it times them out.

When a user times out, all user resources, including database cursors, return to the pool for use by other users.

The background thread also finds client cursors that have crashed or logged out from the Centura net.db Object Engine without releasing thread resources. For example, some may have exited the browser without first exiting the application. The background thread returns these resources to the pool.

To avoid this situation, you should log out of the Centura net.db Object Engine. Do this by selecting the Object Engine window and clicking the **Close** box. Note that this situation only applies to the Page Designer.

If a user uses the browser after being timed out, Centura net.db sends a message from stating that the connection has timed out and displays the Connect dialog. The default setting for the inactivity period is thirty minutes. Use the Centura net.db Customization Utility to change the timeout period. For instructions on using the utility, read *Centura net.db Customization Utility* on page 1-14.

## Chapter 3

# Centura net.db Components and Advanced Features

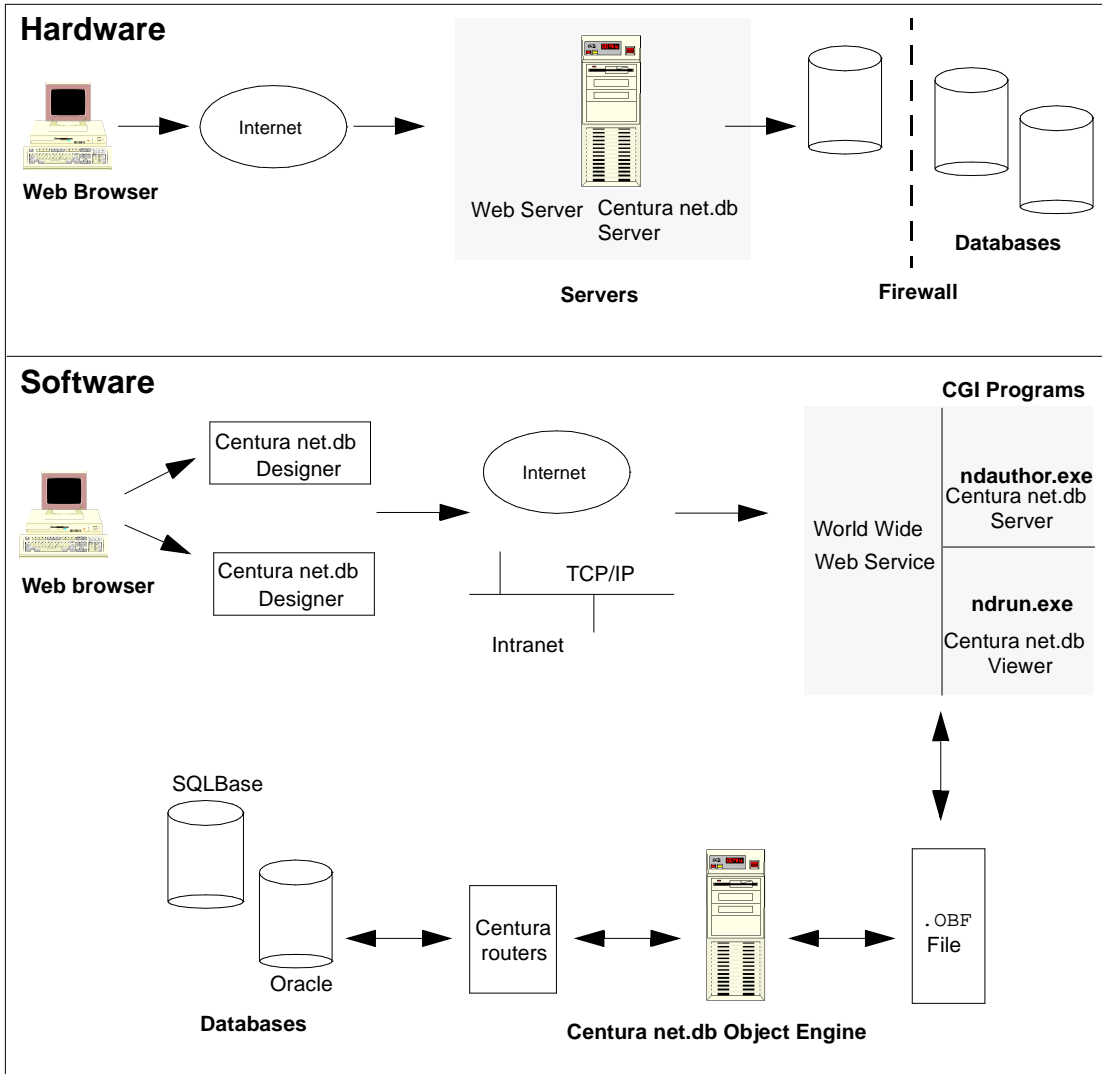
---

This chapter describes Centura net.db's architecture, components, and advanced design features. Topics include:

- Hardware and software architecture
- Centura net.db Object Engine
- Page Designer
- Page Viewer
- Centura net.db and HTML
- Centura net.db and Java script
- Page validation script
- Golden Armadillo book
- Frame and screen control
- Centura net.db tokens

# Architecture

The Centura net.db components work with your Web Server and database server.



*Centura net.db architecture*

# Components

Centura net.db has three main components:

- Centura net.db Object Engine
- Page Designer
- Page Viewer

## Centura net.db Object Engine

The Centura net.db Object Engine manages the connections of multiple users to the selected relational database. Centura net.db Object Engine is a server-side application written in C++, and uses the Centura SQLAPI interface for database connectivity.

The Centura net.db Object Engine automatically generates the SQL code necessary to interact with the database servers. It creates HTML and images from data it retrieves through queries. The Centura net.db Object Engine obtains its navigation model from the Centura net.db Designer.

To log out of the Centura net.db Object Engine, select the Object Engine window and click the **Close** box.

## Page Designer

Page Designer is a CGI application and the design-time component of Centura net.db. You use Page Designer to create libraries, books, and pages.

A library is a Web site you associate with a single relational database and comprises one or more books. A book is one or more pages or graphs that correspond to Web pages. There is no limit to the number of books you can manage within a library. You associate each page with a database table or a view of joined tables. Using Page Designer, you choose the fields or table columns you want to display or edit on the page. You can link pages to each other using push buttons.

Within the Centura net.db explorer, each page contains three folders:

- Search Screen - Preview
- Browse Table - Preview
- Detail Screen - Preview

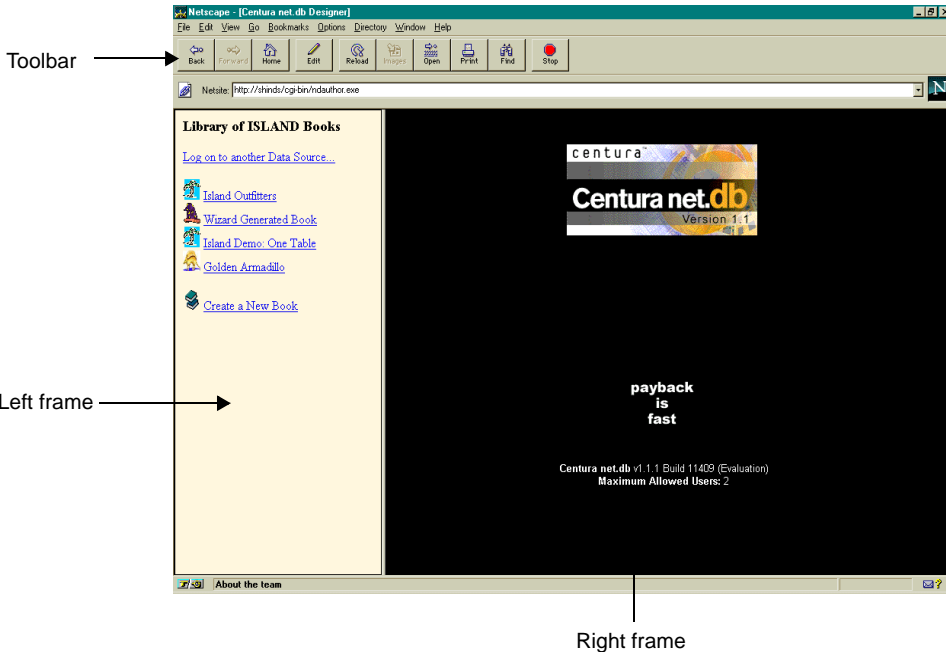
These folders are automatically populated with fields when you run the AutoAuthor wizard and PageWizard.

You control the appearance of a page by adding custom HTML header and footer files. For information on location of HTML files, read *Centura net.db HTML files* on page 1-6.

The AutoAuthor Wizard and PageWizard automatically add three push buttons to the Search Screen: Find, Options, and Advanced. You can change a buttons label in its Property page.

Page Designers advanced formatting options let you further customize your pages. You can click the **Preview** link next to a screen or table at any time during the design process. This test-on-the-fly feature lets you immediately see the results of any modifications you make to a book.

When you first log onto a database, Page Designer displays a list of available books in an expandable outline in the left frame.



Click on a book to display a list of pages associated with that book. Click **Preview** next to a page to execute query-by-example database searches. You can press the **Tab** key to move from field to field on a page. Centura net.db displays search results in a table format. You can click on individual records to view details and update the information.

For more information on searches, read *Searches* on page 3-16.

## Centura net.db wizards



Centura net.db wizards guide you through a series of dialogs, letting you model the entire data source or add and link pages using single mouse clicks. Access Centura net.db wizards by clicking the **Wizards** push button in the outline frame of Page Designer.

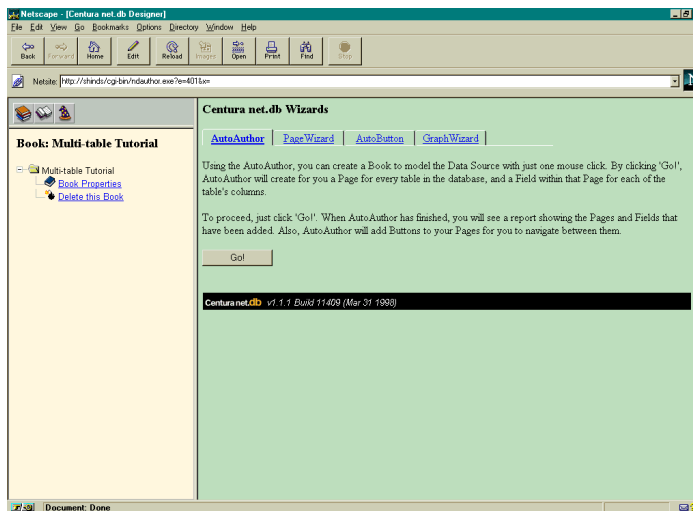
Centura net.db includes six wizards:

- AutoAuthor Wizard
- PageWizard
- AutoButton Wizard
- GraphWizard
- JoinWizard
- Query Wizard

You access the Query Wizard by clicking Canned Query in the left frame at the page level. You access the JoinWizard by clicking Table Joins in the left frame at the page level.

### AutoAuthor wizard

AutoAuthor wizard lets you build Centura net.db books for a selected data source by clicking once. AutoAuthor wizard relies upon the referential integrity of the database to place links between the pages. To use the AutoAuthor wizard, click the **Wizards** push button in the outline frame of Page Designer. The wizards tabbed dialog appears in the right frame, with the AutoAuthor wizard as the default tab.



*AutoAuthor wizard page*

Click **Go!** to build your books. AutoAuthor wizard queries the data source and builds a book as follows rules:

- Creates a page with two columns for every table in the database, providing the table has a primary key or a unique index that can be used instead of a primary key.
- Adds fields within the Search Screen, Browse Table, or Detail Screen for each column in the table. Fields are defined as Primary keys and search fields.

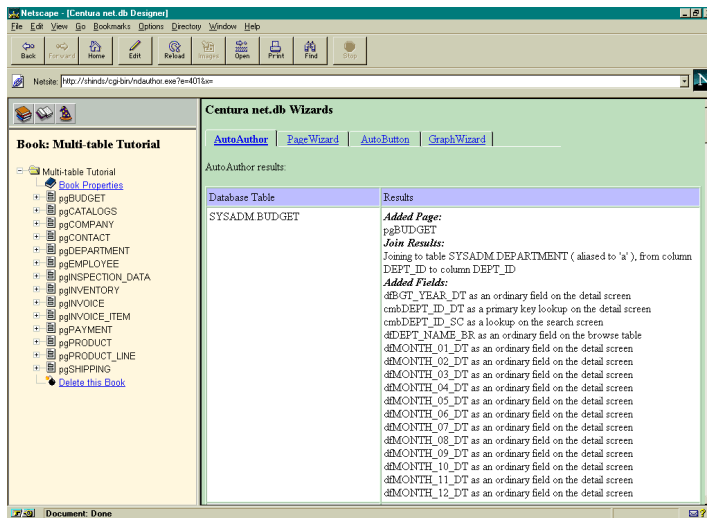
All fields the data source identifies as primary keys, or those fields that are constituent parts of a unique index, are added as non-editable primary key fields. Centura net.db supports compound primary keys.

All primary key fields and a maximum of five other columns of type char with length less than 20, are added as editable search fields.

Any remaining fields are added as editable fields. Primary key fields are added to the page first, followed by the remaining fields sorted by length as reported by the data source.

- Adds push buttons to the pages in the books using referential integrity information from SYSFKCONSTRAINTS (specific to SQLBase). It adds push buttons for both one-to-many and many-to-one directions, creating data navigation tools for your book.

AutoAuthor wizard displays a report showing the results of the operation.



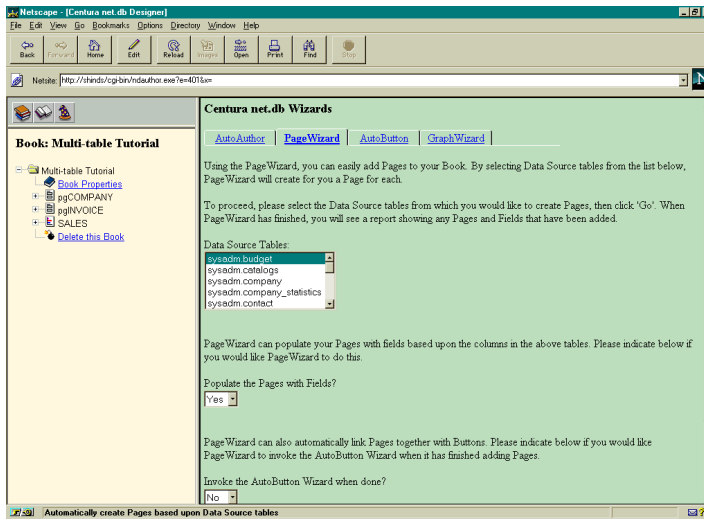
*AutoAuthor wizard results*



AutoAuthor wizard functions by first invoking the PageWizard on every table in the data source, and then the AutoButton wizard on the resulting books. Read the sections on *PageWizard* on page 3-7 and *AutoButton wizard* on page 3-7 for more information.

## PageWizard

PageWizard is a more flexible version of the AutoAuthor wizard. PageWizard prompts you to select a list of data source tables to use to generate pages.




---

**Note:** Hold down the **Ctrl** key while selecting the data source tables if you want PageWizard to use more than one table to build your page.

---

PageWizard also asks if you want AutoButton to be run on the resulting books. Once these selections have been made, click **Go!** to start the wizard.

Using PageWizard, you can build a book from scratch using only a subset of the tables available, or add one or more wizard-generated pages to an existing book. PageWizard generates pages using the same rules as AutoAuthor wizard, and links them using the same rules as the AutoButton wizard.

## AutoButton wizard

AutoButton wizard lets you easily add push buttons to pages, based upon the referential integrity information it receives from the data source. AutoButton wizard can be invoked by AutoAuthor wizard, PageWizard, or on its own. AutoButton wizard applies itself to the entire book, including any wizard-generated pages. To start AutoButton wizard, Click **Go!** on the AutoButton tab.

AutoButton wizard links together pages for which there is Referential Integrity present in the data source.

If any books component pertinent to the link being created is untitled, i.e., appears as [Untitled] in the outline, AutoButton gives it the data source table name (in the case of a page) or column name (in the case of a field). If either of the two fields in the link are not present in the books, they are created as hidden fields to preserve the visual appearance of the page named using the above convention. If AutoButton wizard creates or names anything, you receive a message in the Results column of the AutoButton wizard report.

AutoButton wizard adds push buttons to the bottom of the page in both the one-to-many and many-to-one directions. Push buttons making a one-to-many link have their titles pluralized.

Button Name	On Form On Column	Links to Form Links to Field	Type	Results
LOCATION	COMPANY COMPANY_ID	LOCATION COMPANY_ID	One-to-Many	Button added OK
COMPANY	LOCATION COMPANY_ID	COMPANY COMPANY_ID	Many-to-One	Button added OK

#### *Results of the linking operation*

In the above example, each row in the table describes a push button in terms of its source and destination pages and fields. For example, the first row says that a push button called LOCATION was added to page COMPANY that takes its value from column COMPANY\_ID, and passes it to Field COMPANY\_ID on page LOCATION.

AutoButton wizard does not create push buttons that already exist. You receive a message to this effect in the Results column of the AutoButton wizard report.

## GraphWizard

GraphWizard allows you to create three-dimensional data-aware graphs with just a few mouse clicks. There is no limit to the number of graphs you can include in a Centura net.db book. Each graph can map to a single database table, or you can graph information from multiple database tables if you first join the tables.

GraphWizard prompts you for the following information:

- **Graph Name**  
Identifies the graph using a unique name. The name must contain alphanumeric characters only. Centura net.db does not display the name of the

graph; instead it is a reference when defining a link from a push button on another page.

- **Graph Title**  
Identifies the title of the graph within a book's outline.
- **Data source table**  
Identifies the database table Centura net.db is using to retrieve data.
- **X-Axis values taken from**  
Specifies the database column to use to populate the X-axis.
- **Y-Axis values taken from**  
Specifies the database column to use to populate the Y-axis.

Centura net.db displays the properties it uses to create the graph. Click **Finish** to start the GraphWizard.

Use the `CREATE VIEW` command to create views on one or more tables or views. By granting certain privileges on a view instead of on base tables, you can selectively restrict access to the data in the base tables.

## JoinWizard

JoinWizard lets you easily join secondary data sources so you can display fields from more than one table on the same page. The two tables must have a column in common upon which the join is based. JoinWizard resides at the Centura net.db page level.

JoinWizard prompts you for the following information:

- **Join to table**  
Identifies the database table Centura net.db bases the join upon.
- **Aliased to**  
Identifies the table by another (alias) name, instead of its table name.
- **From column**  
Specifies the database column Centura net.db is using to match the result set.
- **To column**  
Identifies the column of a specific table that is updated during an Insert of two joined tables.

- Outer join

If selected, it allows the non-participating rows of one of the joined tables to be included in the result set. These rows are termed non-participating because they contain key values that are not referenced by any rows of the other table.

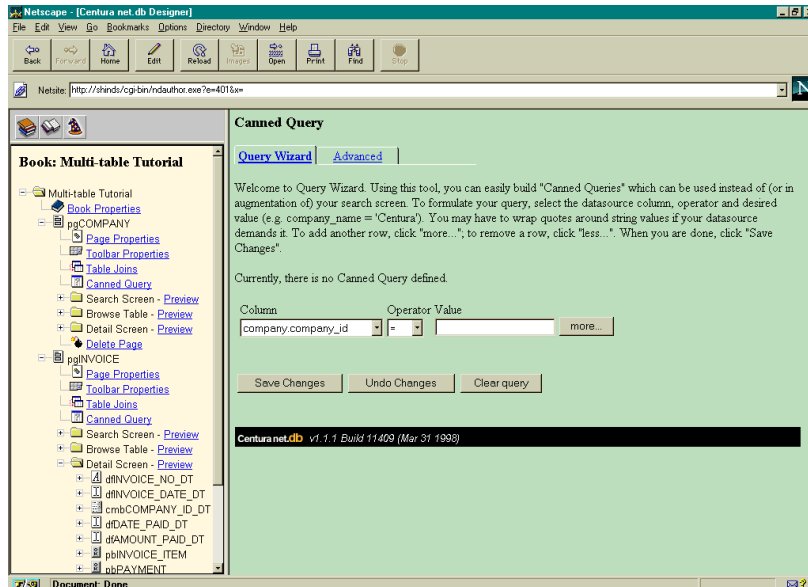
**Note:** SQLBase allows only one outer join. SQLBase can be conformed to Oracle outer join row set definition or the ANSI standard. Data is returned differently depending upon the configuration.

The following applies when joining tables manually:

- The value you enter in the Join Criteria box must take the form of an SQL 'where' clause, minus the keyword 'where'.
- None of the columns that comprise the join criteria need to have fields based upon them in the page.
- If the tables do not have a column in common, the join cannot be reliably attempted.

## Query Wizard

Query Wizard lets you build "Canned Queries" which can be used instead of, or in conjunction with, your Search Screen.



*Query Wizard page*

To construct a query, select the datasource from the Column list box. Next select the operator and value. For example: `company_name = 'Centura'`. You can add another row, by clicking the **More...** button. Click the **Less...** button to remove a row. When you are done constructing your query, click the **Save Changes** button.

## Field Extensions

Centura net.db wizards automatically append extensions to field and combo box names. These extensions indicate which screen or table the field belongs to and make field management easier during design time.

Search Screen fields have an `_SC` appended to the component name. For example:

```
dfCOMPANY_NAME_SC
```

Browse Table fields have an `_BR` appended to the component name. For example:

```
dfCOMPANY_NAME_BR
```

Detail Screen fields have an `_DT` appended to the component name. For example:

```
dfCOMPANY_NAME_DT
```

Please note that these extensions are not automatically added if you use the Component Assistant to add a data field or combo box. To use this convention, append the appropriate extension to the object name using the **Name** field.

## Component Assistant

Component Assistant lets you add different types of objects to your books, including:

- Editable datafields
- Read-only datafields
- Auto combo box
- Auto radio button group
- Data source image
- Push buttons
- HTML

Component Assistant guides you through a series of pages that prompt you for the information necessary to add the requested component.

---

**Note:** Component Assistant resides at the Centura net.db page level.

---

For an example of how the Component Assistant works, read *Formatting your page* on page 4-17.

## Push buttons

If you need to know all the company details for a given person, it is possible to add all the columns from the company table using the join method described above.

However, this may lead to a large and unwieldy page, with many non-editable fields. A better solution is to add a link from the PEOPLE page to another page based on the COMPANY table. This link can be represented as a push button. Use the following steps to add a push button:

1. Create a new page based upon the COMPANY table. You can do this either manually or by running the PageWizard on the COMPANY table.
2. Go back to the PEOPLE page and add a push button. Base the push button on a column, e.g., `company_id`. If the tables do not have a column in common, the link cannot be reliably attempted.
3. Enter the name of the target page and key field. These are `company` and `company_id` respectively. When you click the push button, Centura net.db displays the search results for the company page as if the value currently in `COMPANY_ID` was typed into the `COMPANY_ID` field in the COMPANY pages search screen.

---

**Note:** Centura net.db generates an error at run time if either the target page or key field are undefined or incorrect.

---

## Combo boxes and radio buttons

All combo boxes and radio buttons in Centura net.db contain pairs of visible and hidden values. This allows users to choose from a list of options in the detail screen, without knowledge of the hidden key values that actually get written to or read from the database.

The hidden value communicates with the database (i.e., a key to a database table). The visible value is not written to the database, but displays more descriptive text in the user interface.

Combo boxes and radio buttons should only be included in the browse table if you want to display their hidden values. If you require the descriptive text to be extracted from another database table and displayed in a Centura net.db browsing table, it is recommended that you create a join using the JoinWizard.

For example, if you want to create a page based on the EMPLOYEE table, where you can search for a COMPANY and also change the COMPANY that an employee works for, you would do the following:

1. Create a new page with EMPLOYEE as the primary table.
2. Use the JoinWizard to create a join between the EMPLOYEE and COMPANY tables. For example:

```
EMPLOYEE.COMPANY_ID = COMPANY.COMPANY_ID
```

3. Create a combo box associated with the EMPLOYEE.COMPANY\_ID column, and display it on the Detail page only. This is the combo box that writes information to the database. Its lookup properties would be similar to the following statement:

```
SQL:select COMPANY_ID, COMPANY_NAME from COMPANY order by 2
```

4. Create another combo box associated with the COMPANY.COMPANY\_NAME column, and display it on the Search Screen and in the Browse Table only. This combo box allows you to search for employees of a specific company. Its lookup properties would be similar to the following statement:

```
SQL:select COMPANY_NAME, COMPANY_NAME from COMPANY order by 2
```

You can also create default values for your combo box or radio buttons using simple text statements. The lookup properties would be similar to the following statement:

```
text:value1, value2, value3
```

## Page Viewer

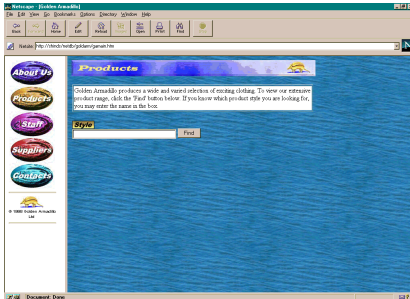
The runtime component, Page Viewer, enables you to interact with databases from within your browser using pages you create with the Page Designer.

You can access Page Viewer from the Centura net.db main screen, or by clicking the **View Book** push button in the toolbar. A second browser launches and a login screen appears. After you log in to the database, an index of pages for that particular database appears. Page Viewer lets you perform advanced searches and updates. For an example of Page Viewer's functionality, run the tutorial in *Chapter 4, Building a One-table Book*.

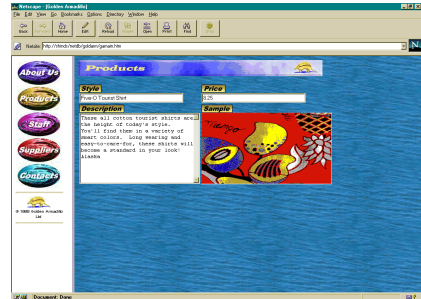
# Centura net.db views

Each Centura net.db page can be viewed in three separate view modes: Search screen, Browse Table, and Detail screen. Each view allows you to perform a different action using the information in that page.

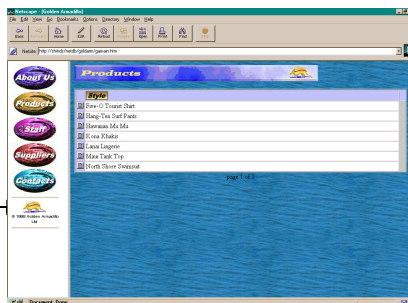
Centura net.db page



Search Screen



Detail Screen



Browse Table



Click to view Detail screen for a line item

Use the Search Screen to enter search and sort criteria. Access this screen by clicking on a page in the Page Viewer index.

The Browse Table displays the tabulated result set generated by the Search screen.

Use the Detail Screen to modify or create a page. Access this page from the Result Table by clicking the View Details button for a specific line item.

---

**Note:** When you do a search and the result set contains only one item, the Result Table does not appear. Instead, Centura net.db displays the results on the Detail Screen.

---

You can navigate between views using the Centura net.db toolbar.












## Centura net.db toolbar

The Centura net.db toolbar contains push buttons for navigating between the Centura net.db screens, deleting records, saving changes, and accessing wizards.

All of the push buttons do not appear on each Centura net.db screen. For example, the Save Changes push button does not appear on the Search screen toolbar since you cannot change a record in that screen.



*Centura net.db toolbar*

Push button	Button name	Description
	Library	Displays all books for a data source. Appears only in Page Designer.
	Open book	Opens the book in the Page Viewer. Appears only in Page Designer.
	Wizards	Displays the book level wizards in the right frame. Appears only in Page Designer.
	Index	Returns you to the Page Viewer index screen.
	Search	Returns you to the Page Viewer Search screen.
	Home	Returns you to the Centura net.db home page at the library level.
	Save	Updates changes you have made to the record.
	New	Creates a new record.
	Delete	Deletes the selected record.

## Primary keys

The Primary key is the table column that uniquely identifies a row or record in a table. When you search the COMPANY table at run-time, Centura net.db uses the Primary Key to retrieve the most up-to-date copy of the record from the database and displays the results in a table view.

If you do not use the AutoAuthor wizard or PageWizard to generate your page, you may need to manually identify the Primary key field in the Field Properties screen. You can also use the Field Properties screen to change the Primary key after you run the AutoAuthor wizard or PageWizard.

## Searches

Searches allow you to choose a value for a field from a drop-down combo box. This speeds up the entry of search criteria, and also serves to restrict users to entering valid values when editing or entering a new record. For example, you may elect to restrict a user to choosing from a range of departments within a company. To add a combo box, delete the field you want to convert and add a new combo box using the Component Assistant.

## Centura net.db and HTML

The main function of the Centura net.db Object Engine is to create the HTML stream that ultimately populates the browser with information. At runtime, the Centura net.db engine uses the Centura SQL /API to assemble objects from the relational database. Using the navigation model defined by the Page Designer, Centura net.db combines database objects with formatting instructions and other HTML images associated with that particular Centura net.db book and page. The HTML is created dynamically, i.e., on the fly, by the Centura net.db Object Engine and streamed down to the client where it is rendered by the browser.

You control the appearance of a form by selecting pre-created HTML headers and footers. A number of GIFs and HTML headers and footers are shipped with Centura net.db. You select them using point-and-click, requiring little keyboard input.

The following are examples of HTML syntax you can explicitly incorporate into a Centura net.db page:

- To make the heading "HEADING" appear in large font (of style heading 1), enter the following script:

```
<h1>heading</h1>
```

- It is possible to specify a variety of tasks using HTML. For example, the following string sends a message to an embedded email address:

```
<a href="mailto:netdbpm@centurasoft.com">reply to Max</a>
```

Centura net.db Designer supports both of the above examples.

To enter HTML at the book level, click **Book Properties**, then select the **Formatting** tab. There are two fields: **HTML Header File** and **HTML Footer File**.

To enter HTML for at the page level, click **Page Properties**, then select the **Formatting** tab. There are two fields: **HTML Header File** and **HTML Footer File**.

There are more advanced ways in which you can use HTML within the Centura net.db design environment that can enhance the look of a Centura net.db book. For more information on using HTML, read *The Golden Armadillo book* on page 3-18.

For a complete guide to HTML syntax that Centura net.db supports, refer to:

<http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html>

## Centura net.db and JavaScript

To provide functionality on the browser when you open a book, Centura net.db Object Engine creates JavaScript. This is embedded into the HTML stream with various other formatting instructions and database objects. Centura net.db uses JavaScript for runtime validation and programmatic control within the browser context.

You may enter JavaScript directly into a Centura net.db page using Page Designer. To enter script at the page level, click **Page Properties**, then select the **Advanced** tab. Enter the script into the **Page Validation JavaScript** field.

## Page validation script

JavaScript you enter into this field is auto-triggered when you click the Save push button on the detail page. You must qualify all references to a field with the page name, for example, frmInvoice.InvoiceDate. If your script returns FALSE, the changes are not saved to the database. Returning TRUE bypasses the default form validation. Specifying no return value allows you to save edits normally. The following is an example script:

```
if ( frmInvoice.DatePaid.value < frmInvoice.InvoiceDate.value )
{
    alert( 'Paid date cannot be before Invoice date' );
    return false;
}
```

---

**Note:** You must use single quotes in JavaScript syntax.

---

The Centura net.db Object Engine uses JavaScript for page validation.

There are more complex examples of how the advanced Centura net.db user can enhance the functionality of an Centura net.db book by using sophisticated JavaScript techniques. For information on these techniques, read *Centura net.db advanced design features* on page 3-18.

## Centura net.db advanced design features

While you can use Centura net.db wizards to quickly generate a book for a specific database and deploy it immediately on the Web, there are many advanced design features you can add manually to your book. These features enhance both the look and functionality of a Centura net.db book, but require a greater understanding of some of the internal workings of the Centura net.db Object Engine.

To demonstrate these advanced features, Centura net.db includes as part of the installation a book titled Golden Armadillo. This book uses the ISLAND database (island.dbs) which is also shipped with Centura net.db. The ISLAND database has enhanced referential integrity rules defined within it that demonstrate the results Centura net.dbs wizards deliver. It also contains images to demonstrate image support for .GIF and .JPG files.

---

**Note:** The advanced topics in this section assume the user has extensive knowledge of JavaScript and HTML.

---

### The Golden Armadillo book

Golden Armadillo is composed of the book file GOLDARM.OBF and the following three HTML files:

- GAMAIN.HTM

This is the main HTML file that loads the other HTML files and initially splits the screen into left and right frames. This file is loaded into the browser and starts the Golden Armadillo application.

- GALEFT.HTM

This HTML file is loaded into the frame on the left side of the screen. This left frame contains the push buttons that call directly into the Centura net.db book by specifying book and page tokens in a URL. For information on the Centura net.db tokens and their use for navigating directly to a specific screen

within a Centura net.db book, read *Centura net.db Intra-Links using URL Tokens* on page 3-21.

- GARIGHT.HTM

This HTML file is loaded into the right frame. The right frame is loaded with various static graphics to form the initial introduction screen.

To see how the basic frame architecture of the demo book is constructed, look at these HTML files. The discussions of Centura net.db advanced features refer to these HTML files as examples of advanced uses of HTML and JavaScript.

## Running the Golden Armadillo book

To open the Golden Armadillo book, click Golden Armadillo in the outline frame. This runs GARMAIN.HTM.

This constructs the various frames described above, including *right*, the main frame Centura net.db requires. For more information on how a Centura net.db book is invoked, read the following sections.

## Centura net.db frame and screen control

Centura net.db books can have two distinct frames, one for the toolbar called *tb* and one for the Centura net.db main screen called *ma*. If you turn the toolbar off, the main frame does not need to be named *ma*. Centura net.db books can be composed of many pages. Each page is typically associated with a database object, such as a table or a joined view.

A Centura net.db page can have as many as three views:

- Search screen  
Use this page to enter search and sort criteria.
- Browse Table  
Use this page to display the tabulated result set generated by the Search screen.
- Detail screen  
Use this page to modify or create a page. Access this page from the Result screen by clicking the View Details button for a specific line item.

A page does not necessarily have all three components. For example, if you are using Canned Query the Search screen would be empty.

The Centura net.db hierarchy is simple: books comprise pages; pages comprise screens (Search Browse Detail); and screens ultimately comprise objects.

You can explicitly navigate to the contents of each of these screens using the book and page tokens. The contents of the screens is loaded into the *ma* frame. For information on Centura net.db tokens, read *Chapter 3, Centura net.db tokens*.

The Centura net.db toolbar provides the content for *tb* frame. The toolbar consists of six push buttons that control the overall behavior of the book. These push buttons are Insert, Update, Search, Delete, Home and Content. You can render all or any of the push buttons invisible.

By default, Centura net.db splits a target frame into *tb* and *ma*. To take control of Centura net.dbs frame behavior, you must create frames and use tokens in the URL to explicitly instruct Centura net.db to override the frames default behavior. The following discussion uses the Golden Armadillo book to illustrate the use of tokens.

The GAMAIN.HTM file creates two frames: left and right. In the left frame, the GALEFT.HTM file is loaded. In the right frame, the GARIGHT.HTM file is loaded.

GAMAIN.HTM uses the following syntax:

```
<html>
<head>
<title>Golden Armadillo</title>
</head>
<!--BPS Dataline HTML Engine (c)1996/97-->
<frameset cols="155,*" frameborder=0 framespacing=0>
<frame src=/netdb/goldarm/galeft.htm name=left marginheight=10
marginwidth=10>
<frame src=/netdb/goldarm/garight.htm name=right
marginheight=10 marginwidth=10>
</frameset>
</html>
```

## Centura net.db tokens

Centura net.db uses token values embedded in a URL string to facilitate communication between the Centura net.db Object Engine and the client browser. The following are most often used tokens:

- **book**  
Defines a Centura net.db book. For example:  
`book=goldarm`
- **page**  
Defines a specific page within a Centura net.db book. For example:  
`page='pgCOMPANY'`

- request

Defines a screen within a page. If you omit this value, the default screen is the search screen. For example:

To go to the Detail screen:

```
&request=new
```

To go to the Browse screen:

```
&request=extract
```

To go to the Advanced Search screen:

```
&request=query
```

- c

The connection handle Centura net.db associates with a user when he log on. To allow Intra-Links to work without forcing the user to go through the login screen, it is necessary to design a book with a default user name and password. If this is not done, the Centura net.db Object Engine interrupts the external link and forces the user to log on. Use of this token is the most complicated aspect of making Intra-Links work in an efficient manner because you can only define it at runtime. All of the other tokens have a known static value at design time. The value of the connection handle is available to the browser in the variable `c` in `form[0]` of the document in the *ma* frame. The Golden Armadillo book uses a JavaScript function to obtain this variable value.

## Centura net.db Intra-Links using URL Tokens

The content of the left frame in the Golden Armadillo book contains push buttons that, when clicked, navigate you directly to a page within the GOLDARM.OBF book. With the exception of the topmost push button, which reloads the static introduction page, each of these push buttons use the Intra-Link URL technique to invoke the requisite page.

This behavior is achieved using the following JavaScript function in GALEFT.HTM to funnel all of the Intra-Link requests:

```
<html>
<head>
<title>Golden Armadillo</title>
</head>
<body bgcolor=FFFFFF>
<script language=javascript>
var index=1;
function GotoPage( whichpage )
{
    if( index == 0 )
```

```

        parent.right.location = "/cgi-bin/qrt.exe?book=goldarm&c="
            + parent.right.c + "&page=" + whichpage;
    else
    {
        parent.right.location = "/cgi-bin/qrt.exe?book=
            goldarm&page=" + whichpage;
        index = 0;
    }
}

```

In the above example, the index variable is initialized to 1. This variable determines whether Centura net.db loads the initial static introductory page or a specific page. If Centura net.db loads the static introductory page, no attempt is made to retrieve a value for c because it is not available. Instead, Centura net.db passes over the URL which makes no reference to c. The Centura net.db Object Engine logs you into the database and establishes a connection handle. If a Centura net.db page is loaded, the Centura net.db Object Engine retrieves the value of c and sends it to Centura net.db as part of the URL.

If a Centura net.db page is loaded, the value of c is sent to Centura net.db as part of the URL. Note how explicit the statement is to get the value of parent.right.c:

```
parent.right.ma.document.forms[0].c.value.
```

Notice also that the value of a book is hard coded. This does not change (book=goldarm), instead Centura net.db passes the page value over as a variable ("&page=" + whichpage).

Centura net.db invokes this JavaScript using the push buttons in the left frame. The following is the HTML script for these push buttons:

```

/script>
<center>
<a href=/netdb/goldarm/garight.htm target=right onClick="index=1;"
onMouseOver="window.status='Learn all about us!';return true;"><img src=/
netdb/goldarm/aboutus.jpg border=0></a><br>
<a href="javascript:GotoPage( 'pgPRODUCT' )" onMouseOver="window.status='See
our extensive product range!';return true;"><img src=/netdb/goldarm/
products.jpg border=0></a><br>
<a href="javascript:GotoPage( 'pgEMPLOYEE' )"
onMouseOver="window.status='Who works for the Armadillo?';return true;"><img
src=/netdb/goldarm/staff.jpg border=0></a><br>
<a href="javascript:GotoPage( 'pgCOMPANY' )" onMouseOver="window.status='Who
supplies Golden Armadillo?';return true;"><img src=/netdb/goldarm/
supplier.jpg border=0></a><br>
<a href="javascript:GotoPage( 'pgCONTACT' )" onMouseOver="window.status='The
Armadillo\'s contacts!';return true;"><img src=/netdb/goldarm/contact.jpg
border=0></a><br>
<hr>

```



```
<font face=arial size=-2>  
<a href=mailto: netdbpm@centurasoft.com onMouseOver="window.status='Send  
mail to the creator of Golden Armadillo!!';return true;"><img src=/netdb/  
goldarm/babyarma.jpg border=0></a>  
<br>  
&copy 1997 Golden Armadillo Ltd  
</font>  
<hr>  
</center>  
</body>  
</html>
```

Note that the top push button does not call the function `GotoPage()`. This push button reloads the static introduction screen and resets the index variable to 1 on receipt of the `onClick` event.

The other push buttons call `GotoPage( 'pgPRODUCT' )` or the specific page you want to target. You must ensure that the page desired exists in `GOLDARM.OBF` and is appropriately named. The URL does not reference the token `&request`. This means that it always invokes the default behavior and navigates you to the `Browse` screen. Adding `&request=new` to the `GotoPage()` function always navigates you to the `Insert` screen assuming that the toolbar button is selected.



## Chapter 4

# Building a One-table Book

---

This chapter shows you how to build a functional one-table Centura net.db book with links to pages and graphics.

For more about the Page Designer, Page Viewer, and Centura net.db Object Engine, read *Chapter 3, Centura net.db Components and Advanced Features*.

## Looking at a completed book

Centura net.db provides you with all of the tools necessary to Web-enable a database and build books. During this tutorial, you build a functional book that demonstrates Centura net.db query and search capabilities. You build all of the screens in this demo using point-and-click with minimal keyboard input.

First, it is helpful to look at the completed Centura net.db book you will create during the tutorial. Island Demo - One Table is a one table book that includes links to forms and graphics.

---

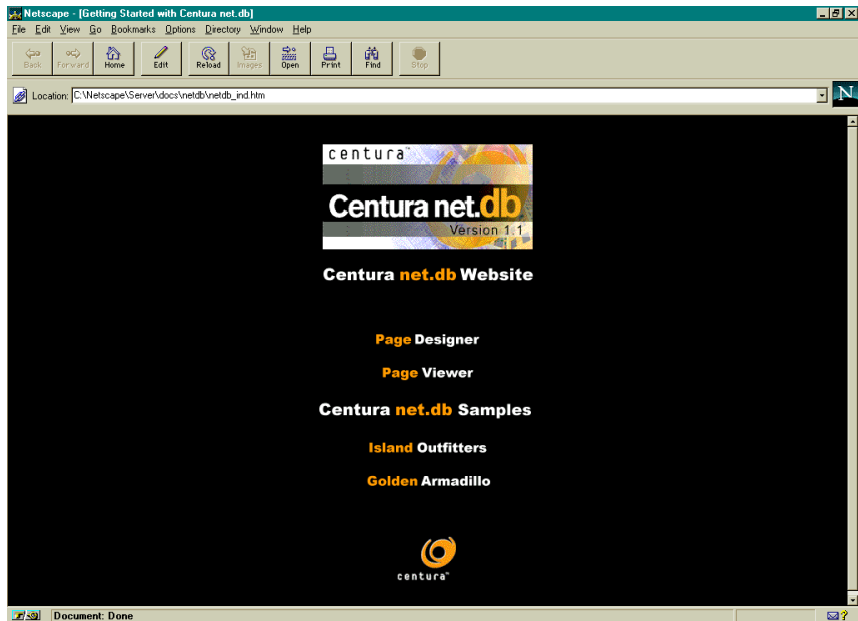
**Note:** Prior to starting Centura net.db, start your SQLBase server and the Centura net.db Object Engine.

---

1. Select **Programs, Centura, net.db, Getting Started with net.db** from the **Start** menu bar. The Centura net.db Designer starts.

The Windows NT version of Centura net.db starts the Centura net.db Object Engine automatically. If you are running Centura net.db for Windows 95, you must start the Web server manually.

The Centura net.db main screen appears:



- Click **Page Designer**. Centura net.db displays the **Connect** dialog.



The image shows a 'Connect' dialog box with a yellow header. It contains three text input fields labeled 'Database', 'User Name', and 'Password', and a 'Connect' button at the bottom.

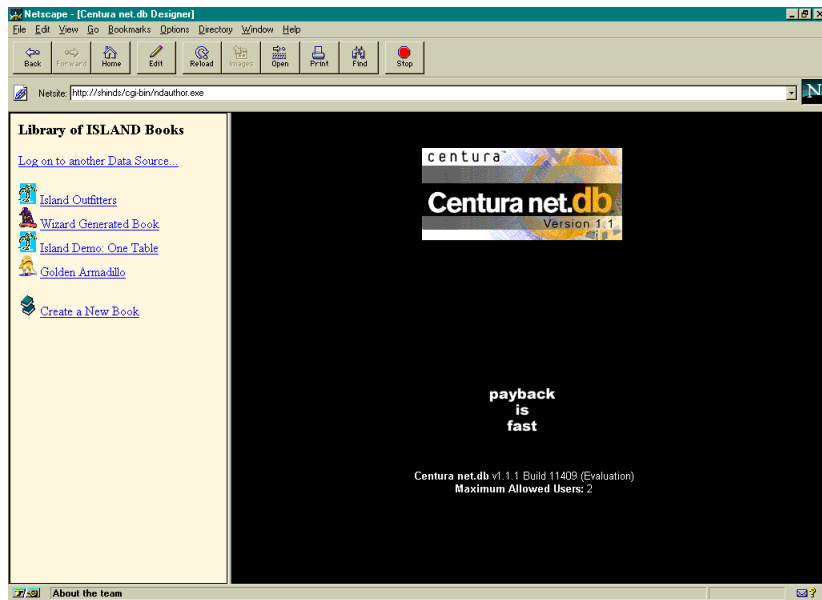
- Enter the following values:
  - Database: island
  - User Name: sysadm
  - Password: sysadm

---

**Note:** When entering a password, only asterisks appear.

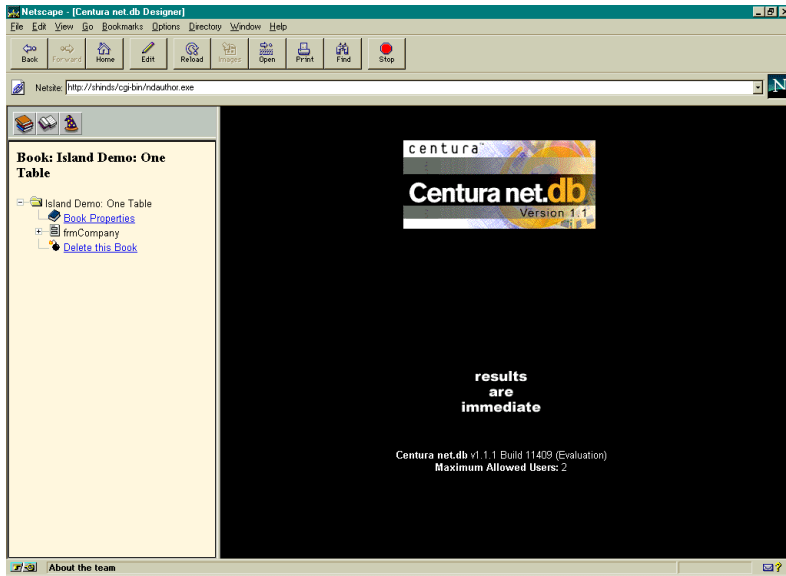
---

- Click **Connect**. The library of ISLAND books appears in the left frame.

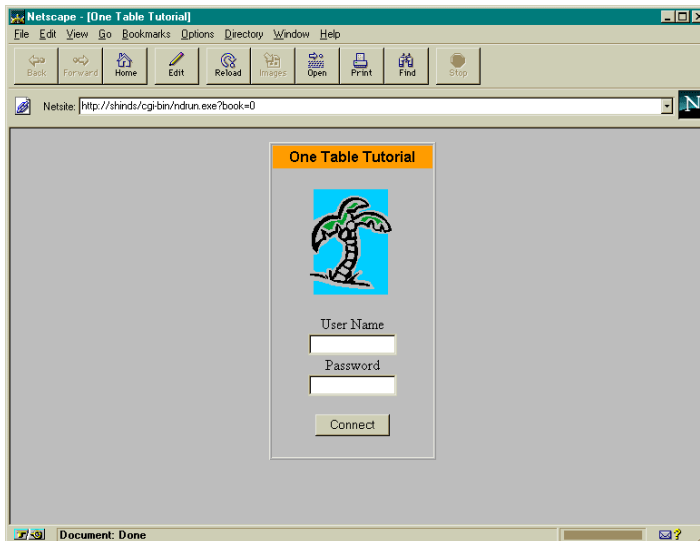


5. Click **Island Demo - One Table**.

The book components appear in the left frame:



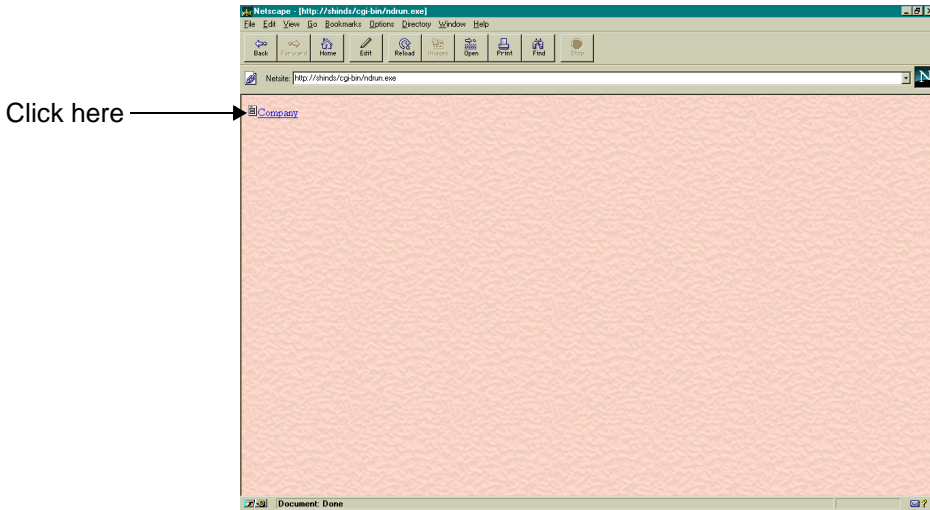
6. Click the **Open Book** icon in the toolbar. A second browser launches. This browser is running the Page Viewer. A login screen appears:



7. Enter the following values:

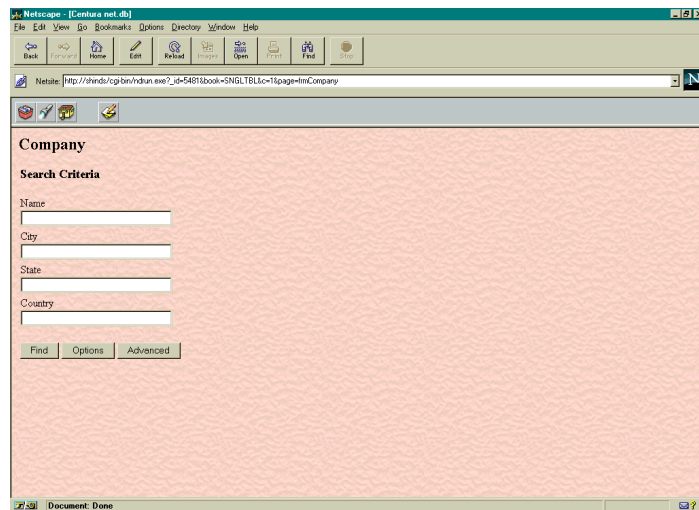
- User Name: `sysadm`
- Password: `sysadm`

Click **Connect**. The index for the Island Demo - One Table appears:



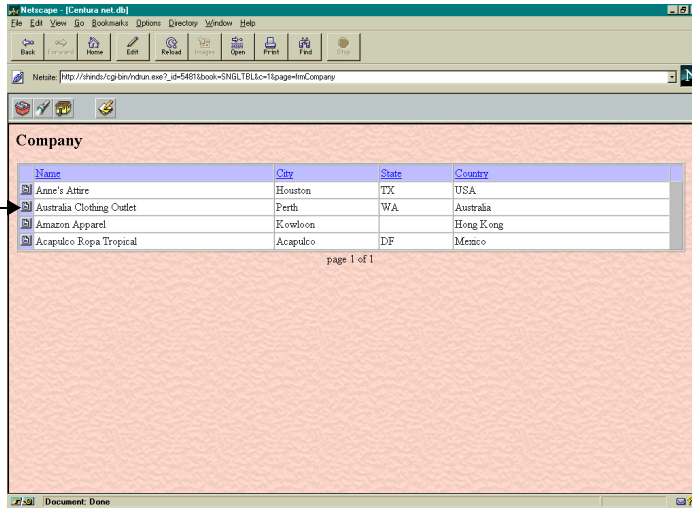
The index displays a link to the Company page. During this tutorial, you are going to build this page using the Centura net.db PageWizard. PageWizard uses the tables and columns in the COMPANY table of the Island database.

8. Click **Company**. The Company Search Criteria page appears:

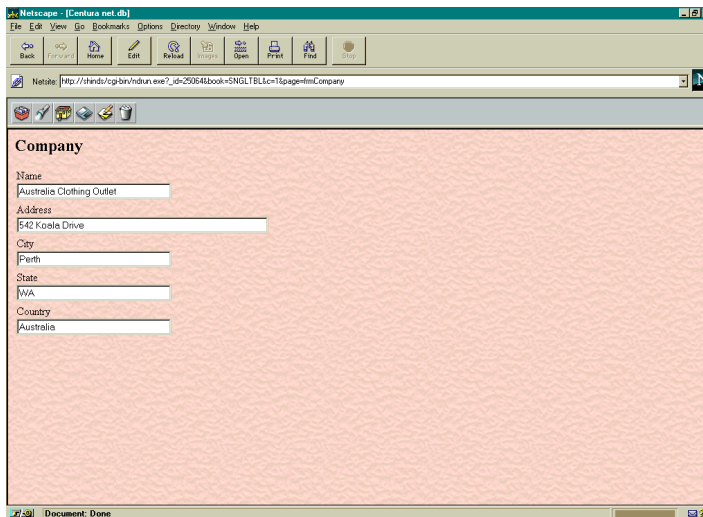


The Search screen is for entering search and sort criteria. Centura net.db pages are built using the Page Designer. The background, headers, and footers you see were all created using available options within Page Designer.

- Type A (case insensitive) in the **Name** field and click the **Find** push button. This search string finds all companies with a name starting with A. The Browse Table appears. The Detail screen displays the tabulated result set as defined by the options entered in the Search screen. Click the **Detail** icon next to Australia Clothing Outlet.



The details for the Australian Clothing Outlet appear:





- Now that you have seen the type of book you can build with Centura net.db, exit from the current browser to return to the Island Demo - One Table screen on the first browser.



Click the **Library** push button to close the Island Demo - One Table book and start building your own book.

## Building a book

During this part of the tutorial, you create a one table book using the COMPANY table from the Island database. Before you can create or modify an existing book, you must log onto the database associated with that specific book.

### Creating a new book

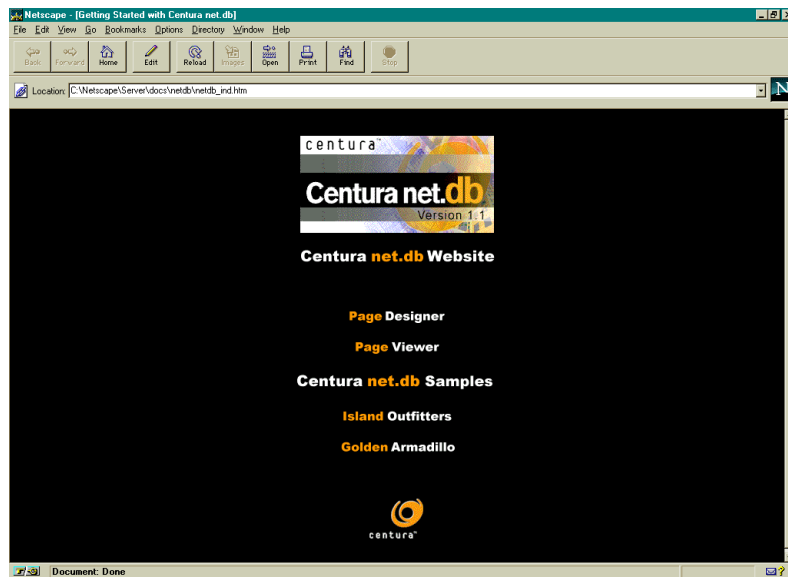
To create a new Centura net.db book, perform the following steps:

---

**Note:** If you just viewed the completed sample book, skip to step four, since you are already logged onto Centura net.db.

---

- Select **Centura, Getting Started with Centura net.db** from the **Start** menu bar. The Centura net.db contents page appears:



- Click **Page Designer**. Centura net.db displays the **Connect** dialog:

The image shows a 'Connect' dialog box with an orange header. It contains three text input fields labeled 'Database', 'User Name', and 'Password', and a 'Connect' button at the bottom.

**Connect**

Database

User Name

Password

Connect

- Enter the following values:
  - Database: island
  - User Name: sysadm
  - Password: sysadm

---

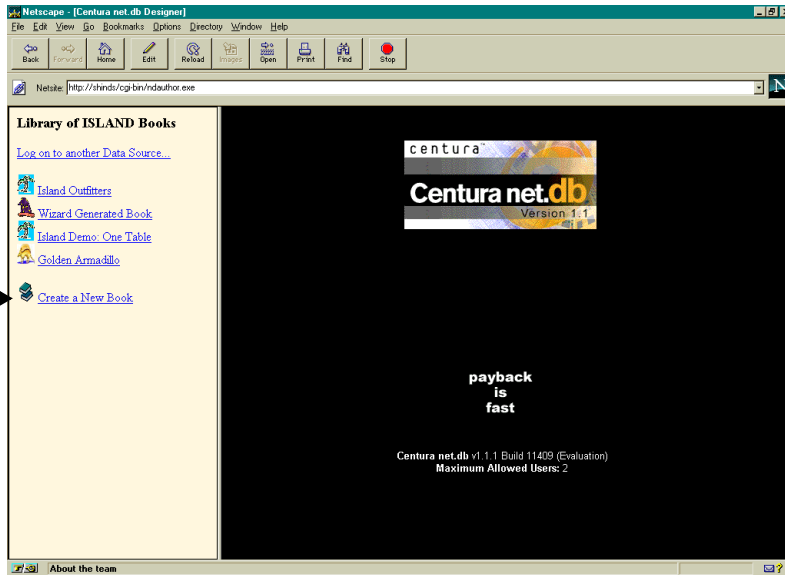
**Note:** When entering a password, only asterisks appear.

---

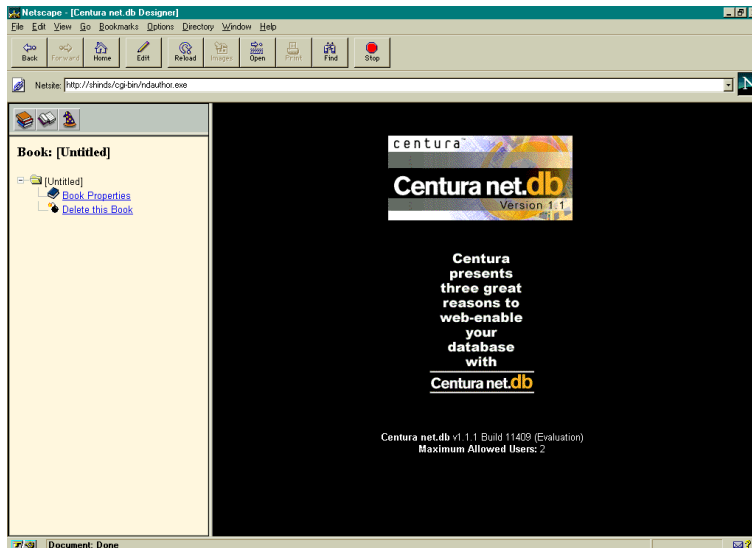
Click **Connect**. The library of Island books and a link for creating a new book appear in the left frame.

4. Click **Create a New Book** in the left frame.

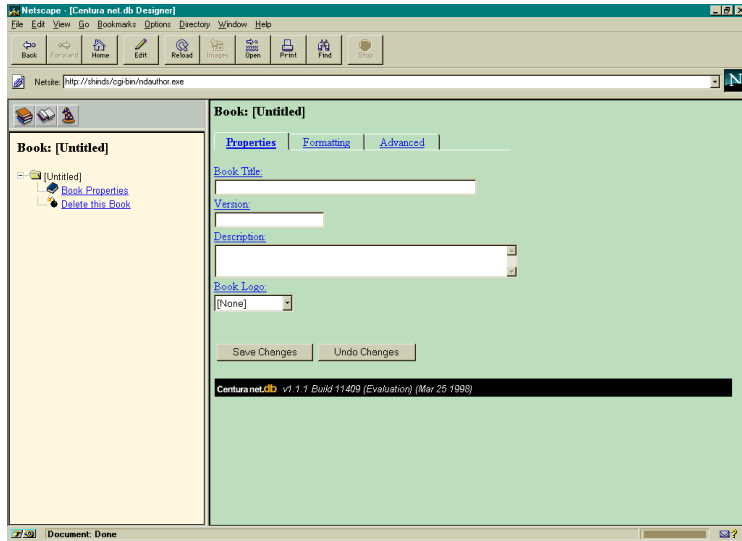
Click here to create  
a new book →



The outline for a new book appears in the left frame.



5. Click **Book Properties**. The Book Properties page appears in the right frame:



6. Enter the following values:
- Book Title: One Table Tutorial
  - Version: 1.1.1
  - Description: One table tutorial for the Island SQLBase database.
  - Book Logo: palm.gif
7. Click **Save Changes**.

---

**Note:** To access Centura net.db online help, click the field name for which you want to view help. Field names that have links to help are presented as hypertext links. By default, these are blue underlines.

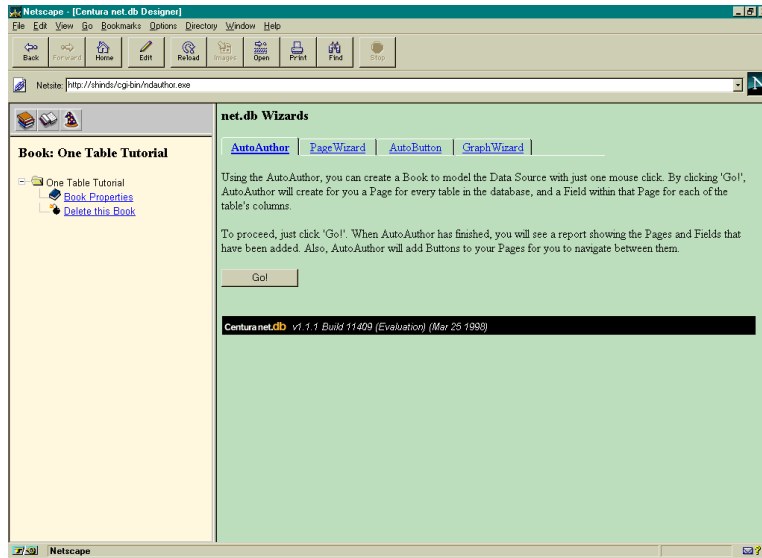
---

## Adding a page to your book

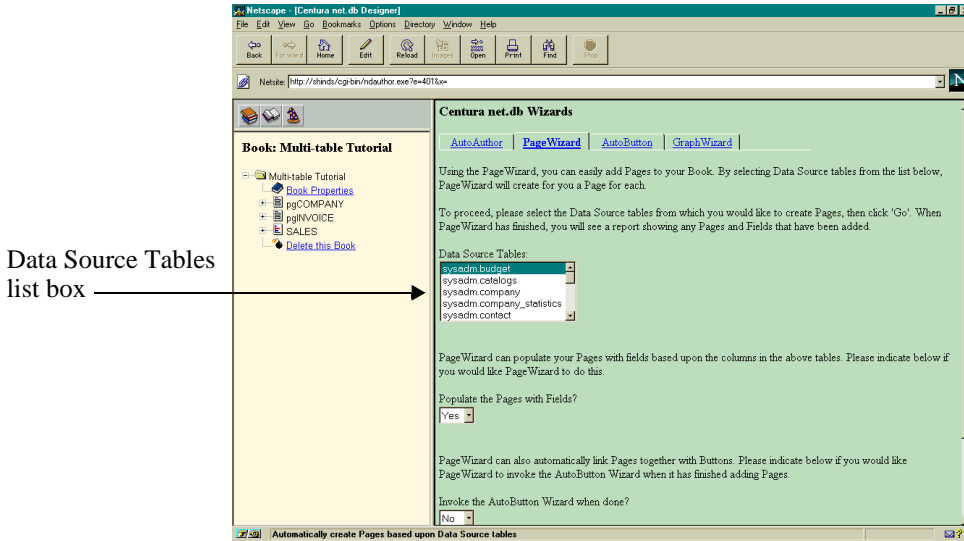
This section describes how to use PageWizard to automatically create a new page for viewing and updating the COMPANY table. To add pages to your book, perform the following steps:



1. Click the **Wizards** push button. The Centura net.db Wizards page appears in the right frame:



- Click the **PageWizard** tab. PageWizard guides you through the process of adding pages to your book.



- Select `sysadm.company` in the **Data Source Tables** list box.

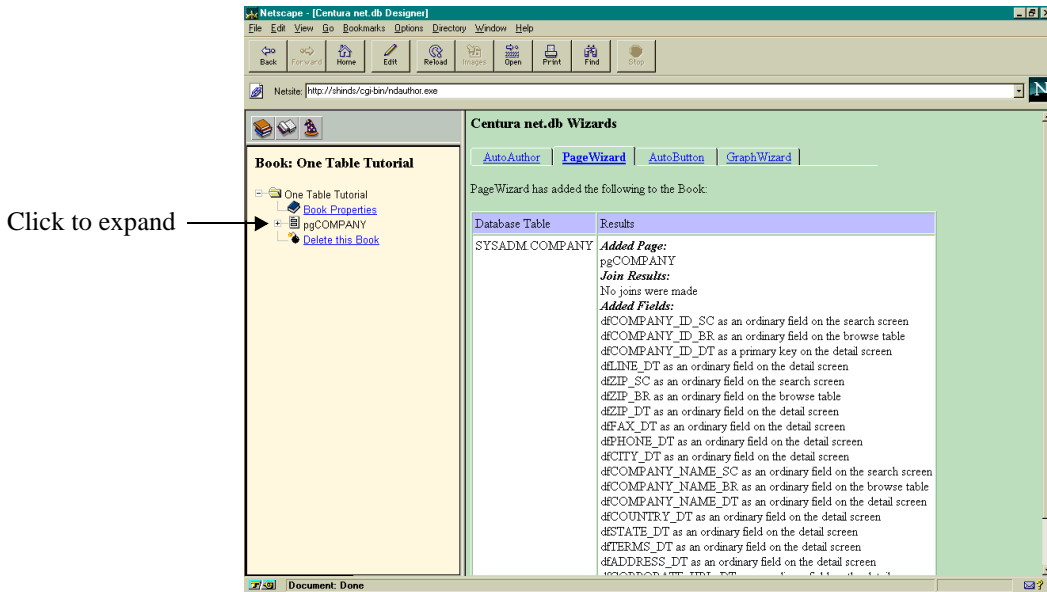
Do not change the Yes default value in the field **Populate the Pages with fields?** A Yes value tells PageWizard you want to add pages to your book based on the columns in the `sysadm.company` table.

You also want to accept the No default value for the **Invoke the AutoButton Wizard when done?** field. For this tutorial, you do not add push buttons.

- Scroll down the page and click **Go!** PageWizard creates a page for the `sysadm.company` table and adds a field for each of the table's columns. PageWizard results appear in a table in the right frame. For more information on the PageWizard, read *PageWizard* on page 3-7.

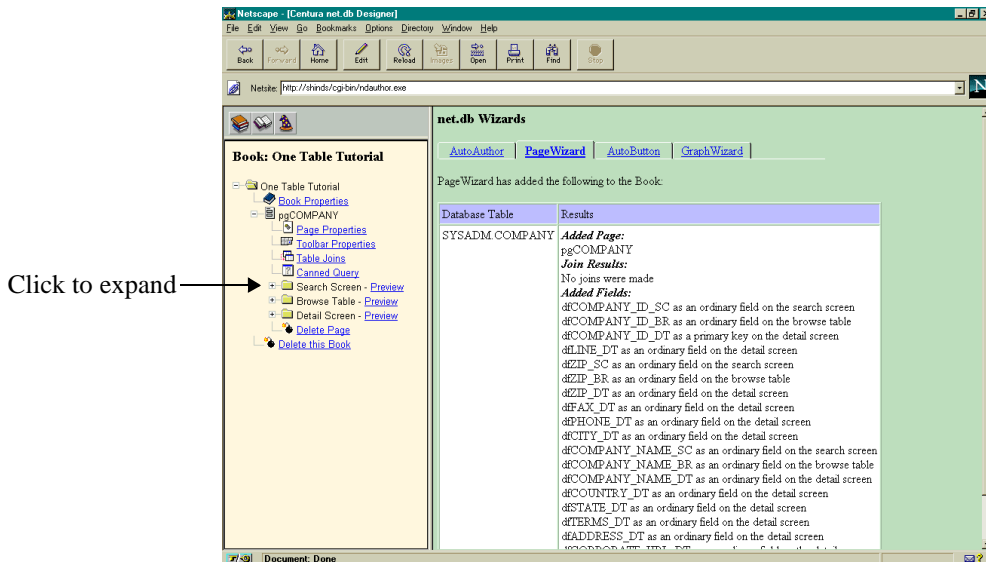
Notice in the left frame, that your book is now populated with the `pgCOMPANY` page.

Click the + symbol next to **pgCOMPANY** in the left frame to expand the outline.

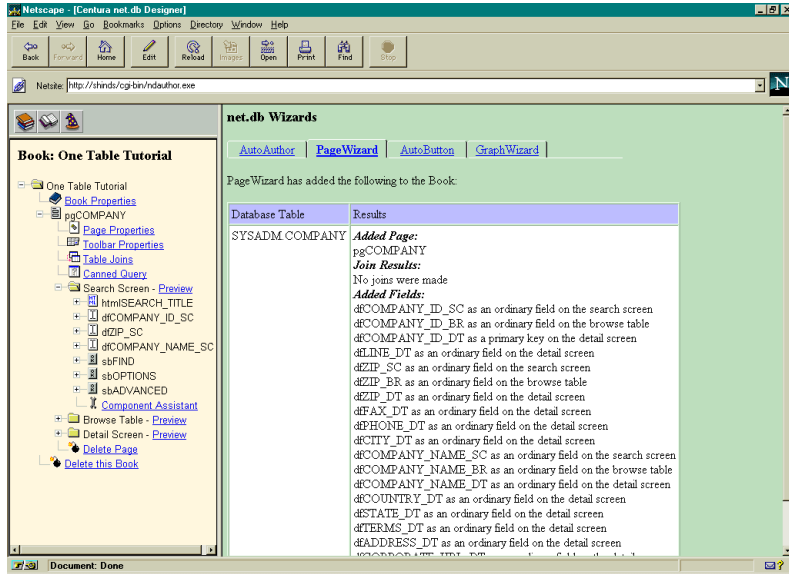


The Search Screen, Browse Table, and Detail Screen folders appear. These folders contain the fields associated with each screen.

5. Click the + symbol next to **Search Screen - Preview** to expand the outline.



## 6. The fields PageWizard automatically added to the Search Screen display:



**Note:** Centura net.db wizards automatically append extensions to field and combo box names. These extensions indicate which screen or table the field belongs to and make field management easier during designtime.

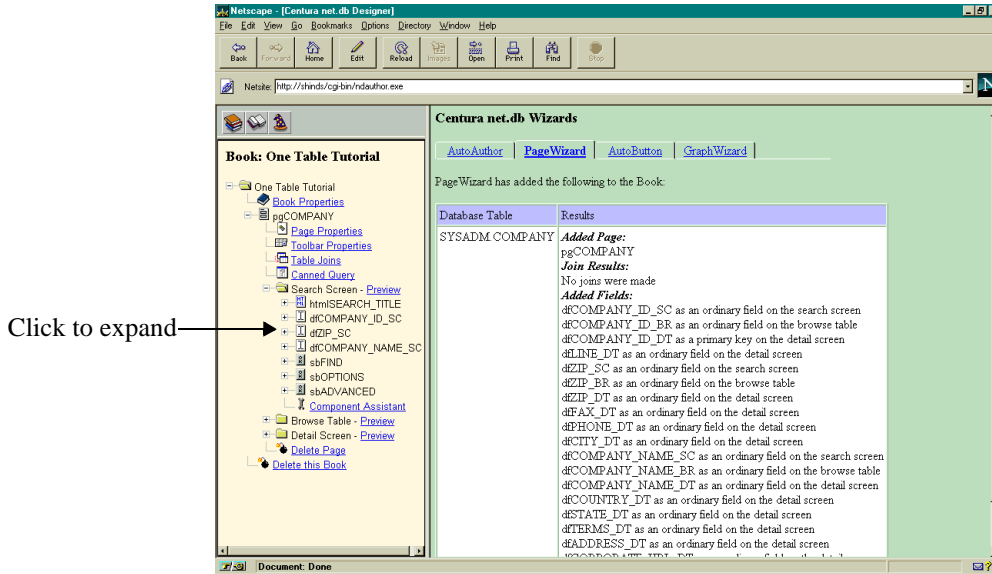
Search Screen fields have an **\_SC** appended to the component name.

Browse Table fields have an **\_BR** appended to the component name.

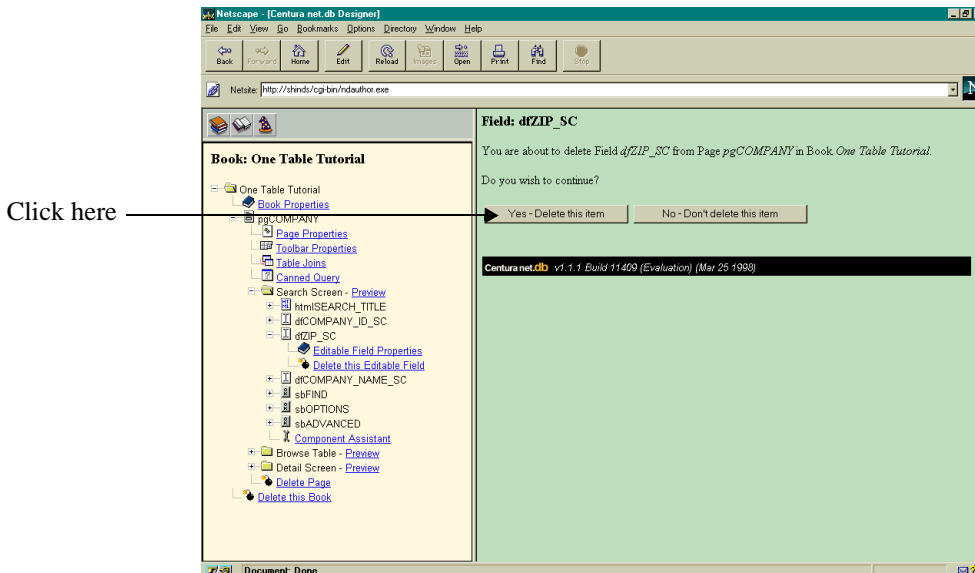
Detail Screen fields have an **\_DT** appended to the component name.



7. During this tutorial, you do not use all of the fields PageWizard created. Click the + symbol next to the **dfZIP\_SC** field to expand the outline.



8. Click **Delete this Editable Field**. A message appears in the right frame asking if you want to delete the selected field. Click **Yes - Delete this item**.



9. Repeat steps six through eight for the following fields:

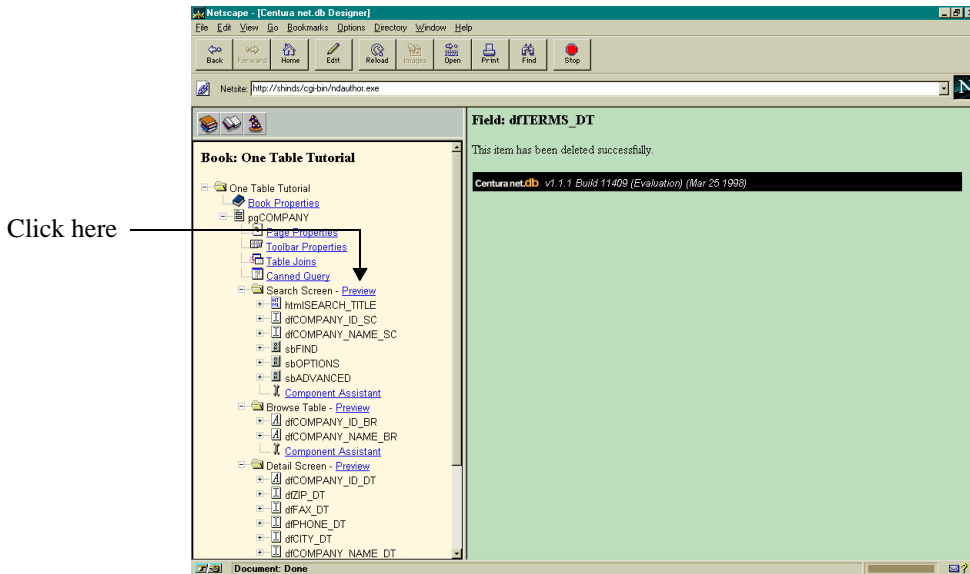
Folder	Field
Browse Table	dfZIP_BR
Detail Screen	dfLINE_DT
	dfTERMS_DT

Notice that the **Delete this Editable Field** link becomes **Delete this Read Only Field** for dfZIP\_BR in the Browse Table.

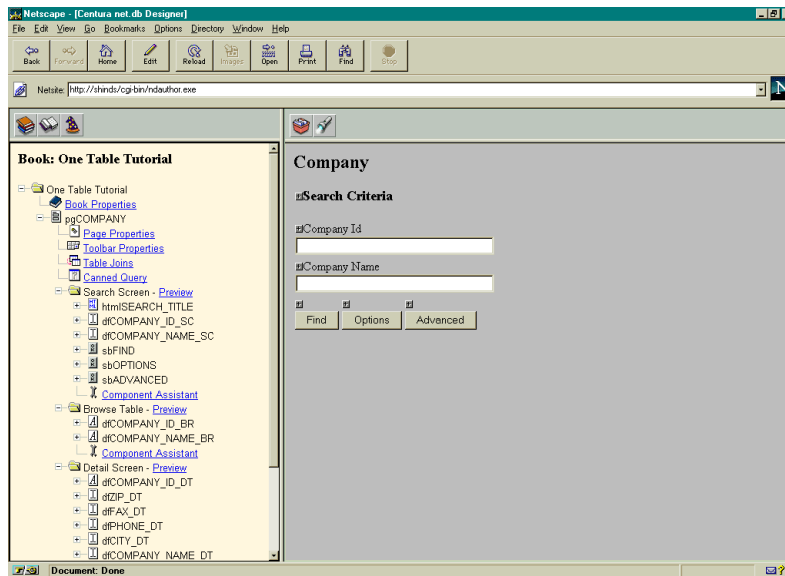
## Previewing your work

You have used PageWizard to create a Centura net.db book populated with information from the sysadm.company table. To see what the Company page looks like before you customize it further, do the following:

1. Click **Preview** next to Search Screen.



Centura net.db displays a functional COMPANY page Search screen. You cannot modify the COMPANY table using this screen.



You can click the **Preview** link next to a screen or table at any time during the design process. This test-on-the-fly feature lets you immediately see the results of any modifications you make to a book.

## Formatting your page

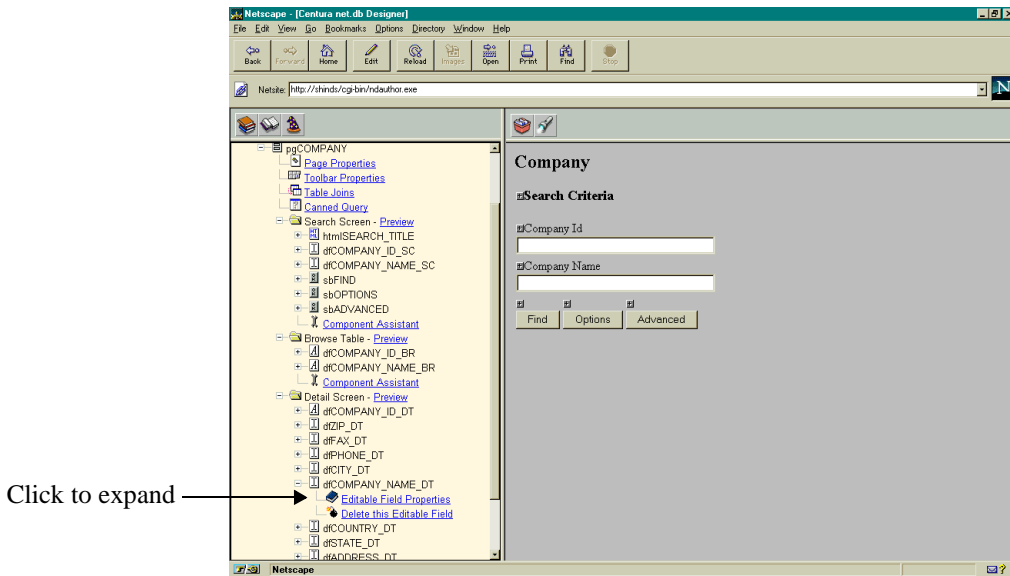
During this part of the tutorial, you format the COMPANY page by changing the position of the fields on the Detail Screen. You also change the COMPANY\_ID field title.

### Changing field positions

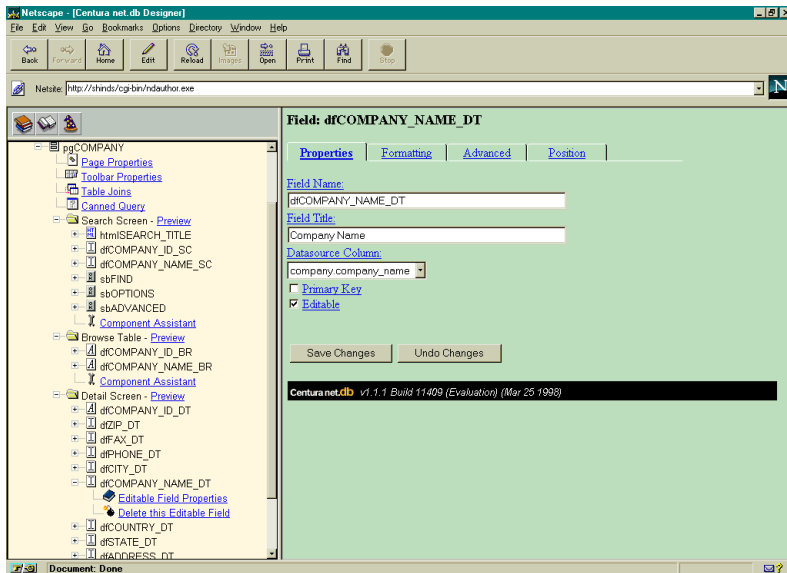
To change the position of fields on a screen, perform the following steps:

1. Click the + symbol next to **Detail Screen - Preview** to expand it.
2. Click the + symbol next to **dfCOMPANY\_NAME\_DT** to expand the outline.

## 3. Click Editable Field Properties.

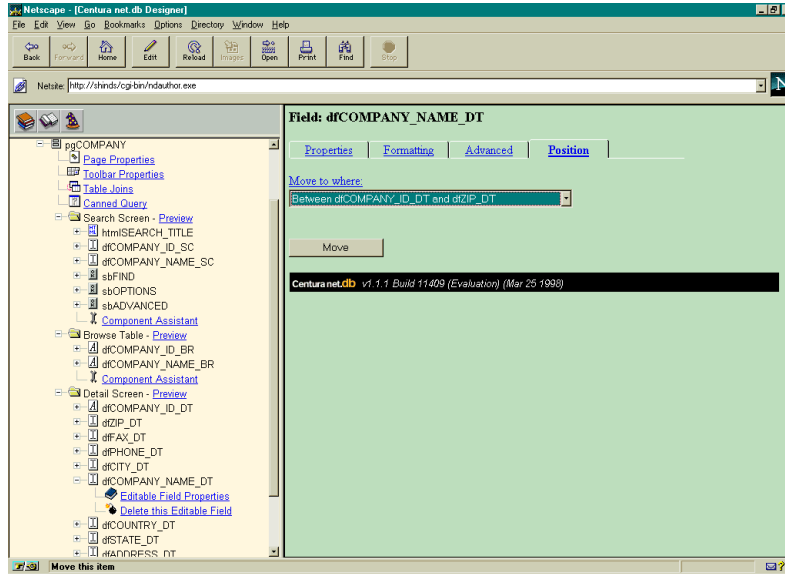


The field's property attributes appear in the right frame.



You can edit the property values interactively on this page. For this field, `dfCOMPANY_NAME_DT`, you do not change any of the values. You will, however, want to change some of the values for other fields momentarily.

4. Click the **Position** tab. Centura net.db displays the position properties of the dfCOMPANY\_NAME\_DT field in the right frame. Use this screen to change the position of the COMPANY\_NAME\_DT field on the COMPANY Detail Screen.
5. Change the value in the **Move to Where** field from Between dfCITY\_DT and dfCOUNTRY\_DT to Between dfCOMPANY\_ID\_DT and dfZIP\_DT.



Click **Move**. Note that the position of dfCOMPANY\_NAME\_DT in the outline has changed.

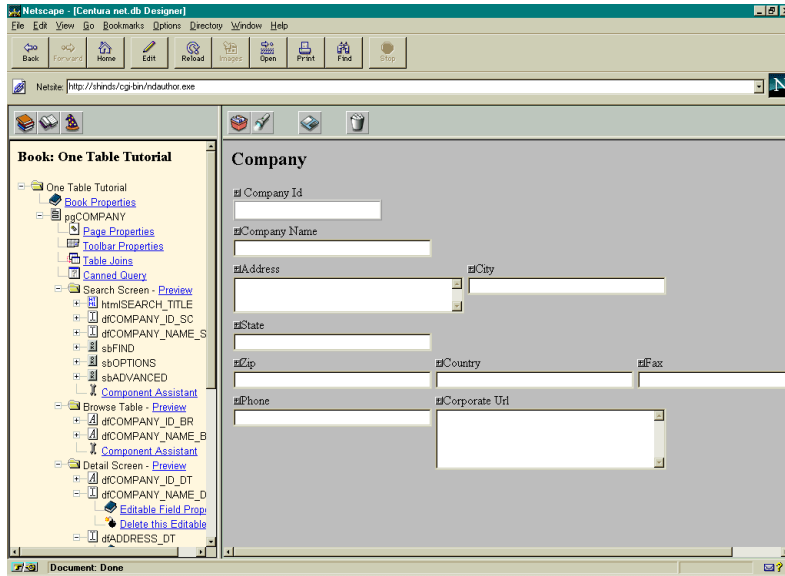
6. Using the following field definitions, repeat steps one through five for the following fields and assign these values:

Field Name	Position
dfADDRESS_DT	Between dfCOMPANY_NAME_DT and dfZIP_DT
dfCITY_DT	Between dfADDRESS_DT and dfZIP_DT
dfSTATE_DT	Between dfCITY_DT and dfZIP_DT
dfCOUNTRY_DT	Between dfZIP_DT and dfFAX_DT

## Previewing your work

To see what the Company page Detail screen looks like before you customize it further, do the following:

1. Click **Preview** next to Detail Screen. Centura net.db displays the Company page Detail Screen:



## Changing a field's position on a row

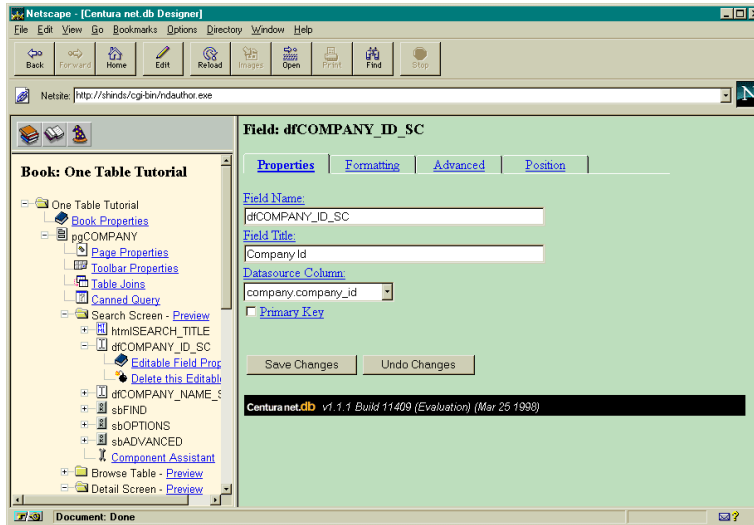
To force a field to appear on a specific row, perform the following steps.

1. Click the + symbol next to **Detail Screen - Preview** to expand the outline.
2. Click the + symbol next to **dfZIP\_DT** to expand the outline.
3. Click **Editable Field Properties**. The field's property attributes appear in the right frame.
4. Click the **Formatting** tab.
5. Click the **Start New Row** box to deselect it. This forces the dfZIP\_DT field to appear on the previous row. Click **Save Changes**.
6. For the dfCOUNTRY field on the Detail Screen, perform steps one through four. Then select the **Start New Row** box. This forces the COUNTRY field to appear on a new row. Click **Save Changes**.

## Changing field titles

To change a field's title, perform the following steps:

1. Click the + symbol next to **Search Screen - Preview** to expand the outline.
2. Click the + symbol next to **dfCOMPANY\_ID\_SC** to expand the outline. Click **Editable Field Properties**. The field's property attributes appear in the right frame.



3. Change the Field Title from Company Id to Company Id (note case). Click **Save Changes**.

Repeat steps one through three for dfCOMPANY\_ID\_BR in the Browse Table and dfCOMPANY\_ID\_DT in the Detail Screen.

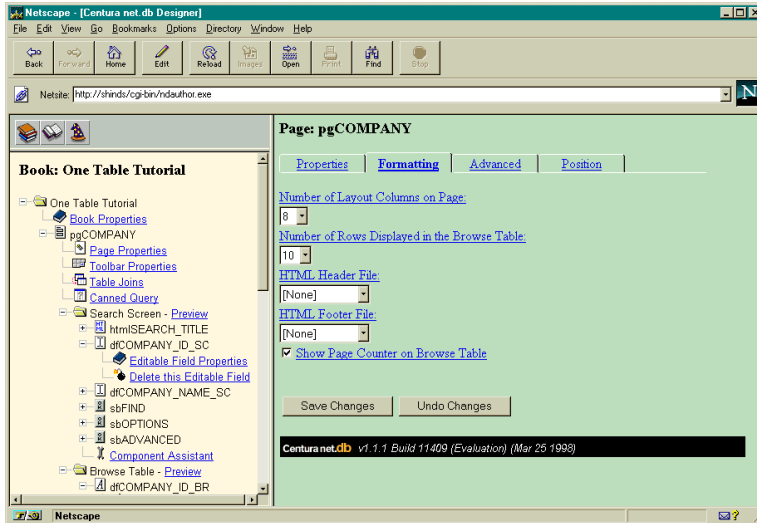
## Cleaning up the look of your page

During this part of the tutorial, you add HTML header and footer files and hide the Delete push button.

### Adding HTML header and footer files

HTML header and footer files make your Centura net.db book appear more professional. For more information on HTML files, read *Centura net.db and HTML* on page 3-16.

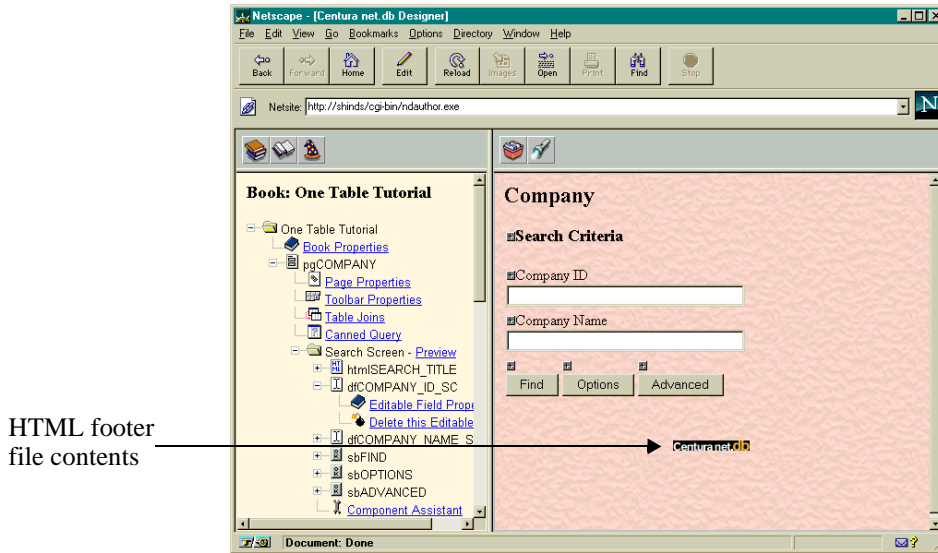
1. Click **Page Properties** in the outline to display the COMPANY page properties. Click the **Formatting** tab. Formatting options for the COMPANY page appear in the right frame.



2. Change the value in the **HTML Header File** field from [None] to peachhd.htm. Centura net.db uses the contents of this file as the background for your page.
3. Change the value in the **HTML Footer File** field from [None] to main\_f\_i.htm. The contents of this file will appear as a footer on your page.



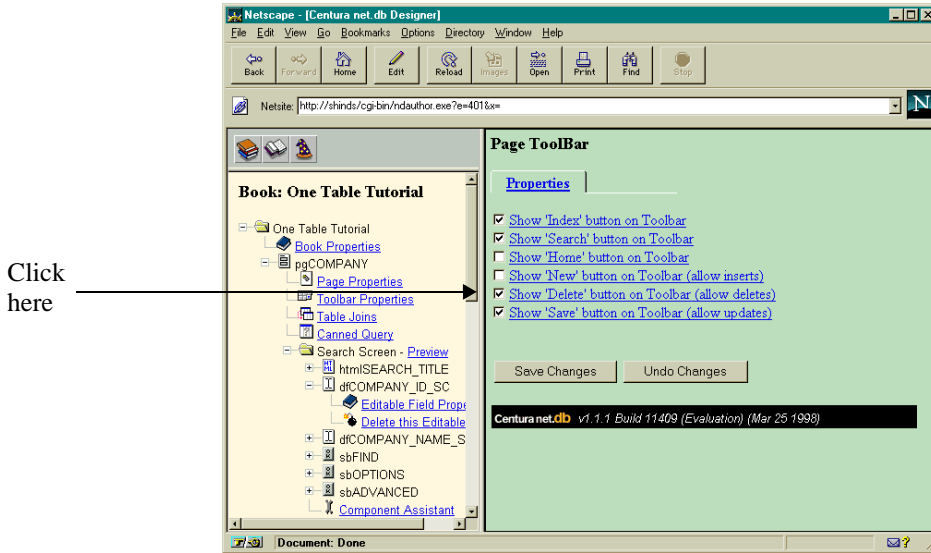
- Click **Save Changes**. Click **Preview** next to Search Screen in the outline. The COMPANY page now has a more professional interface.



## Hiding the Delete push button

For this tutorial, you do not want users to have the option of deleting records from the COMPANY page. To hide the Delete push button, perform the following steps:

1. Click **Toolbar Properties**. The Toolbar Properties page appears in the right frame:



2. Deselect the **Show Delete button on Toolbar (allow deletes)**.
3. Click **Save Changes**.

## Summary

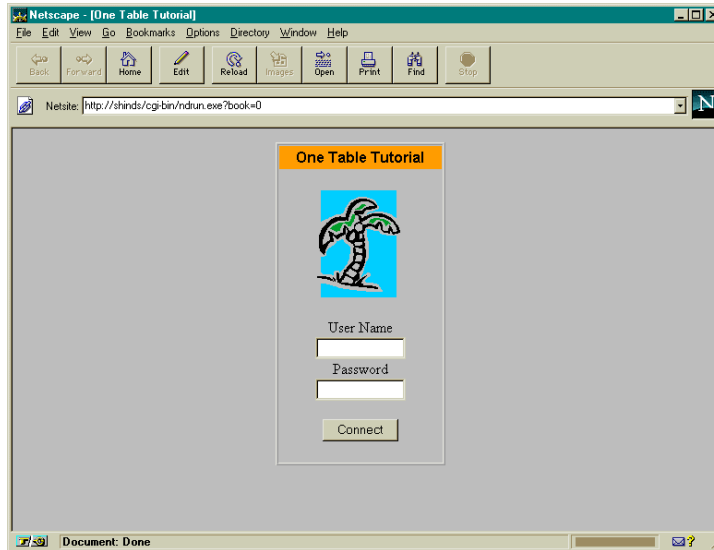
You have now built a functional Centura net.db book complete with advanced search capabilities, using only minimal keyboard input. You are now ready to move from the design-time component to the Centura net.db runtime component called Page Viewer. This mode lets you interact with the Island database from within your browser using the pages you created using the Page Designer.

## Running the book

During this part of the tutorial, you are going to run the book you created using the Page Designer. Centura net.db Page Viewer lets you search databases and interactively update them.



1. Click the **Open Book** push button in the toolbar. A second browser launches and a login screen appears:



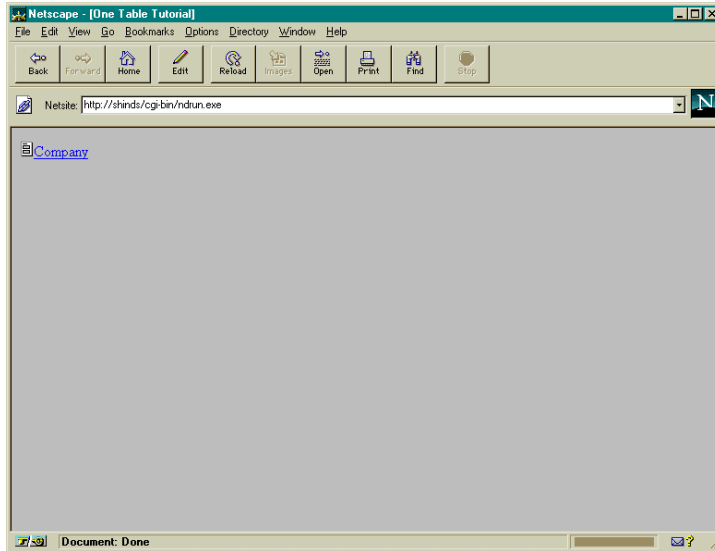
2. Enter the following values:
  - User Name: `sysadm`
  - Password: `sysadm`

---

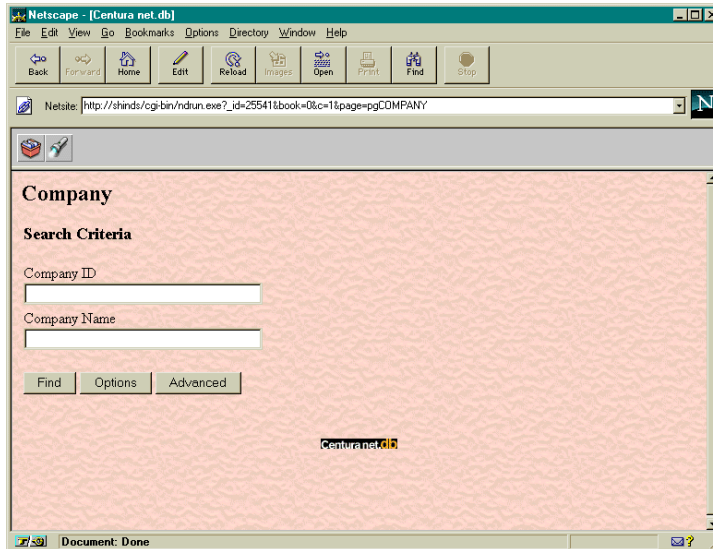
**Note:** When entering a password, only asterisks appear.

---

Click **Connect**. You are now running the Centura net.db Page Viewer. The index for the One Table Tutorial book appears:



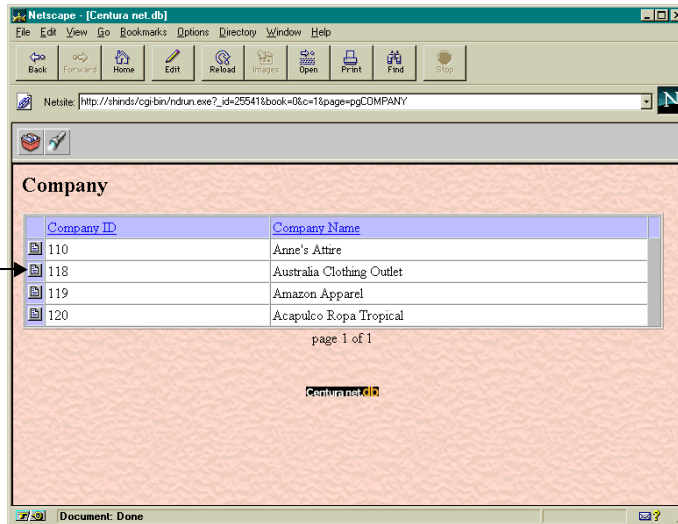
3. Click the **Company** page link. The Company Search Criteria page appears:



- Type A (case insensitive) in the **Company Name** field and click **Find**. This string searches for all companies with a name starting with A. The Search Results page appears in a table view:

**Note:** Search is similar to "A%" in SQL. For example, for text appearing anywhere in the line with pp in their name, type % pp.

Detail icon



When you do a search and the result set contains only one item, the Browse Table does not appear. Instead, Centura net.db displays the results on the Detail screen.

- Click the **Detail** icon next to Australia Clothing Outlet. The details for this item appear on the Detail screen:

The screenshot shows a Netscape browser window with the following form data:

Company	
Company ID	118
Company Name	Australia Clothing Outlet
Address	999 Waitzing Mathilda Ave.
City	Perth
State	WA
Zip	2066
Country	Australia
Phone	612-999-9999
Fax	612-999-9990
Corporate Url	http://www.australiaclothingoutlet.com

- You can interactively edit the information on this page. Change the information in the Phone field from 612-999-9999 to 612-9427-0222.
- Click the **Save Changes** push button in the toolbar to update the Island database.
- Click the **Search Screen** push button in the toolbar to return to the Search Criteria screen.
- Click the **Options** push button on the Company Search Criteria screen. The Options dialog appears:

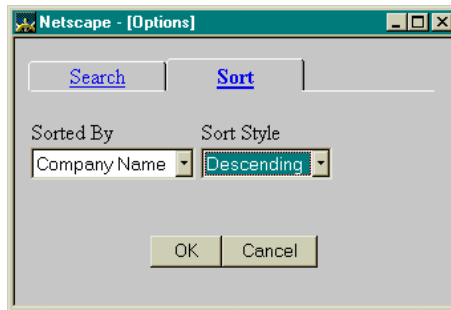


The screenshot shows the Netscape [Options] dialog box with the following settings:

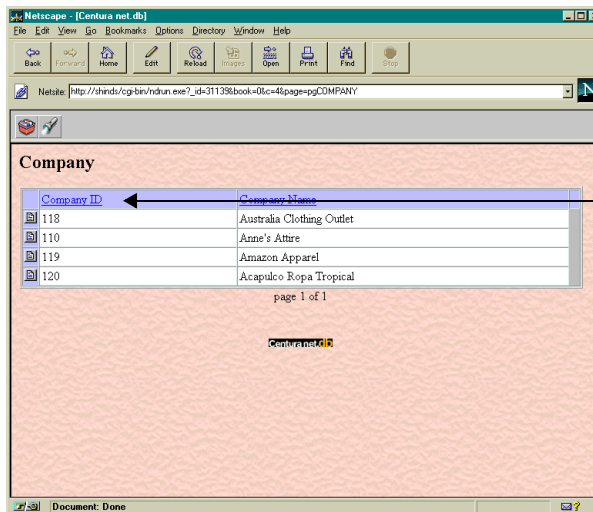
- Buttons: Search, Sort
- Case Sensitive:
- Exact Match:
- Buttons: OK, Cancel

This dialog allows you to set your search and sort criteria.

10. Click the **Sort** tab. Change the **Sorted by** field to COMPANY NAME. Next change the **Sort Style** from Ascending to Descending. Click **OK**.

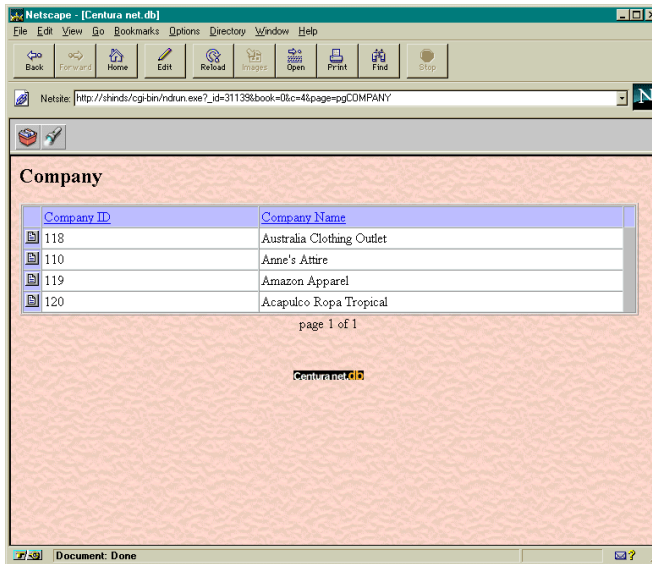


11. Type A in the **Company Name** field and click **Find**. All companies with names starting with A appear in descending order by Company Name.



Click here to sort by Company ID

12. You can also change the sort criteria by clicking on the table heading. Click the **Company ID** table heading. The results are now sorted by Company ID number.



You can move between the Browse Table and the Search screen using the Search screen button.

You have now completed your first Centura net.db book.

## Summary

This chapter introduced you to creating your own one-table book using Centura net.db. For a look at Centura net.db's advanced features, run the tutorial in *Chapter 5, Building a Multi-table Book*.



## Chapter 5

# Building a Multi-table Book

---

This chapter contains a tutorial to build a functional multi-table book using Centura net.db's advanced features.

During this tutorial, you build the COMPANY page, INVOICE page, and SALES graph of the Island Outfitters demo.

For more about the Centura net.db Page Designer and Centura net.db Page Viewer, read *Chapter 3, Centura net.db Components and Advanced Features*.

---

**Note:** It is recommended that you first run the tutorial in *Chapter 4, Building a One-table Book*.

---

## Building a multi-table book

This tutorial guides you through the process of creating a multi-table book from the ISLAND database. It demonstrates how to add combo boxes, radio buttons, push buttons, and graphs to a Centura net.db book.

---

**Note:** Prior to starting Centura net.DB, start your SQLBase Server and the Centura net.DB Object Engine.

---

## Creating and populating a book

### Creating a new book

To create a new Centura net.db book, perform the following steps:

1. Open **Programs, Centura, net.DB, Getting Started with net.db** from the **Start** menu bar. The Centura net.DB Designer starts. The Centura net.db main screen appears:



2. Click **Page Designer**. Centura net.db displays the **Connect** dialog.



The image shows a 'Connect' dialog box with an orange title bar. It contains three text input fields for 'Database', 'User Name', and 'Password', and a 'Connect' button at the bottom.

3. Enter the following values:
  - Database: island
  - User Name: sysadm
  - Password: sysadm

---

**Note:** When entering a password, only asterisks appear.

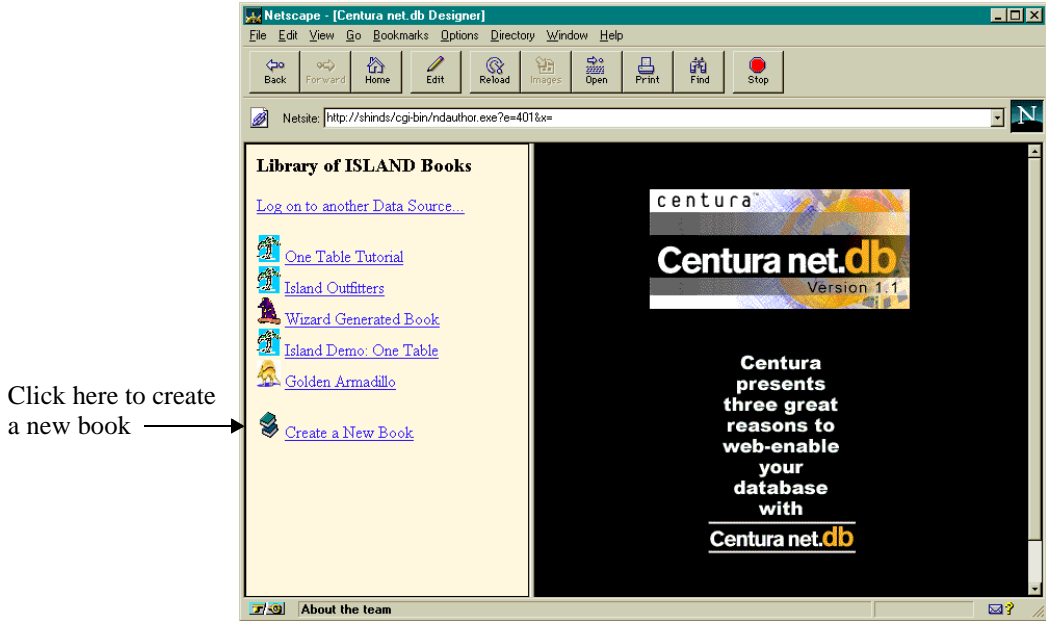
---

4. Click **Connect**. The Library of ISLAND Books and a link for creating a new book appear in the left frame.

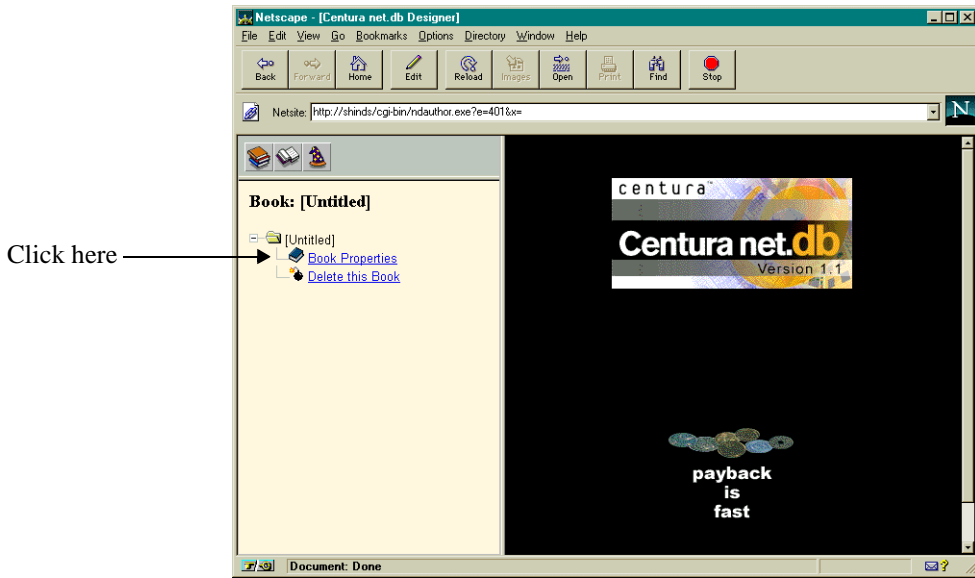
---

**Note:** If you have not already started SQLBase, and sqlpipe is enabled, SQLBase starts automatically.

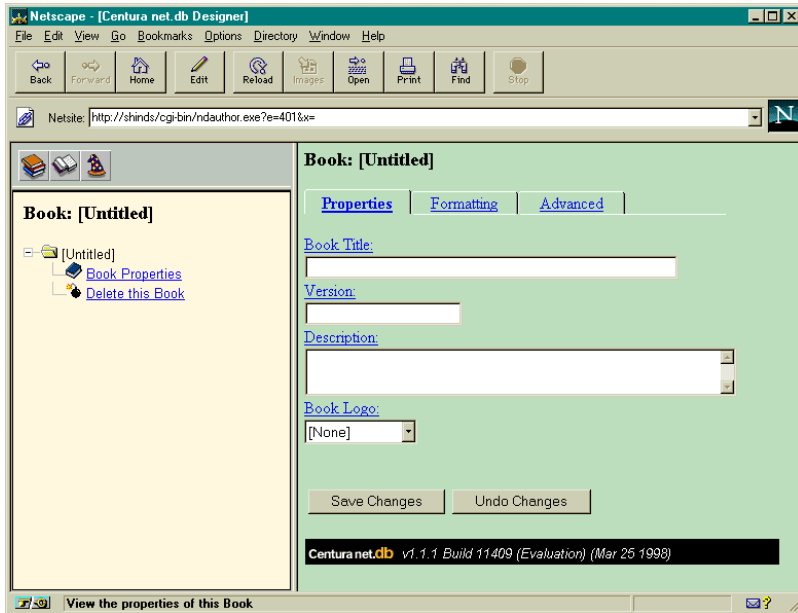
---



5. Click **Create a New Book** in the left frame. The outline for a new book appears in the left frame:



6. Click **Book Properties**. The Book Properties page appears in the right frame:



7. Enter the following values:
- Book Title: Multi-table Tutorial
  - Version: 1.1.1
  - Description: Multi-table tutorial for the Island SQLBase database.
  - Book Logo: island.gif
8. Click **Save Changes**.

---

**Note:** To access Centura net.db online help, click the field name for which you want help. Field names that have links to help are underlined.

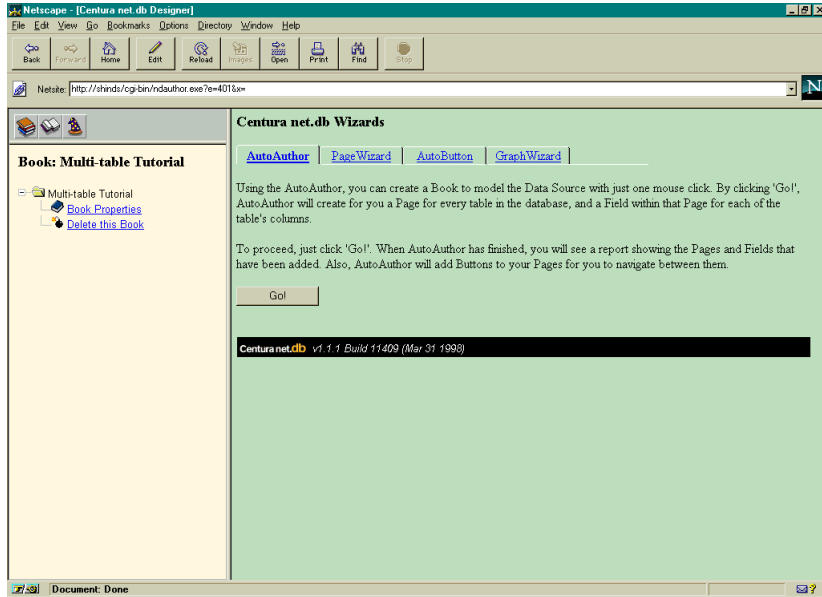
---

## Adding pages to your book

During this part of the tutorial, you use the AutoAuthor wizard to add pages to your book.

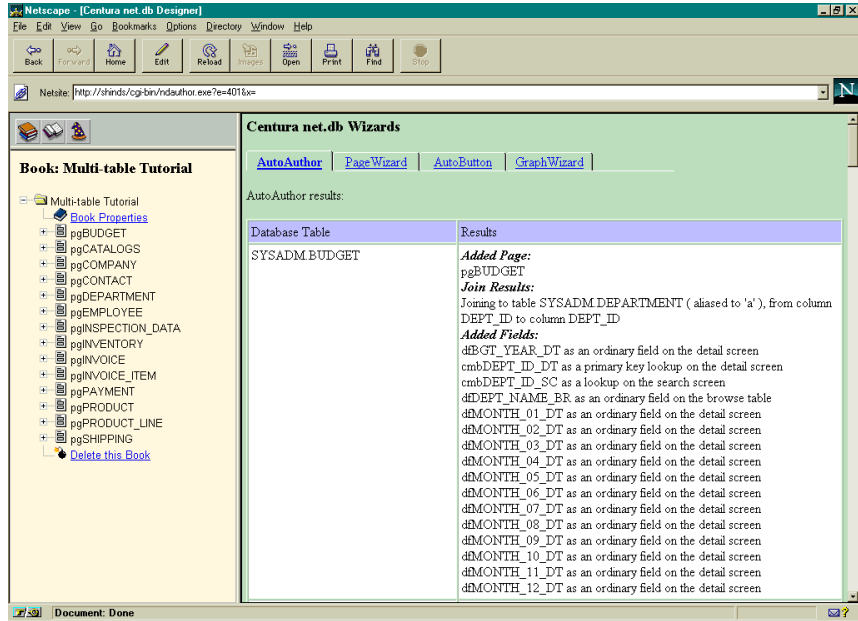


1. Click the **Wizards** push button. The default tab is the AutoAuthor wizard. The Centura net.db wizards page appears in the right frame:



2. Click **Go!** The AutoAuthor wizard creates a page for every table in the ISLAND database, and a field for each column of the table. The phrase Wizard Running appears on the status bar at the bottom of your browser when you run a Centura net.db wizard.

The AutoAuthor wizard results appear in a table format in the right frame. Note in the outline in the left frame that the book is now populated with pages.



**Note:** Centura net.db uses the following prefixes to indicate the item type:

- pages: pg
- data fields: df
- combo boxes: cmb

You can view the pages and fields AutoAuthor wizard added by scrolling down the table in the right frame. This table also specifies what, if any, joins were made for each page.

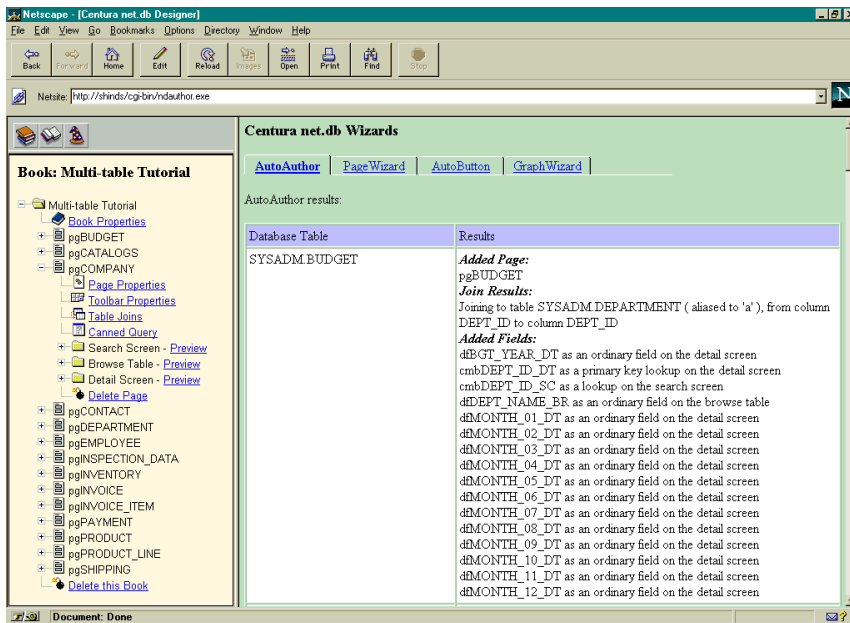
For this tutorial, you are going to be formatting the Company and Invoice pages.

## Formatting the Company page

During this part of the tutorial, you format the COMPANY page by deleting fields you do not need and changing the position of the remaining fields.

### Deleting fields

1. Click the + symbol next to **pgCOMPANY** in the left frame to expand the outline and view the associated components of the Company page.



**Note:** Centura net.db wizards automatically append extensions to field and combo box names. These extensions indicate which screen or table the field belongs to and make field management easier during design time.

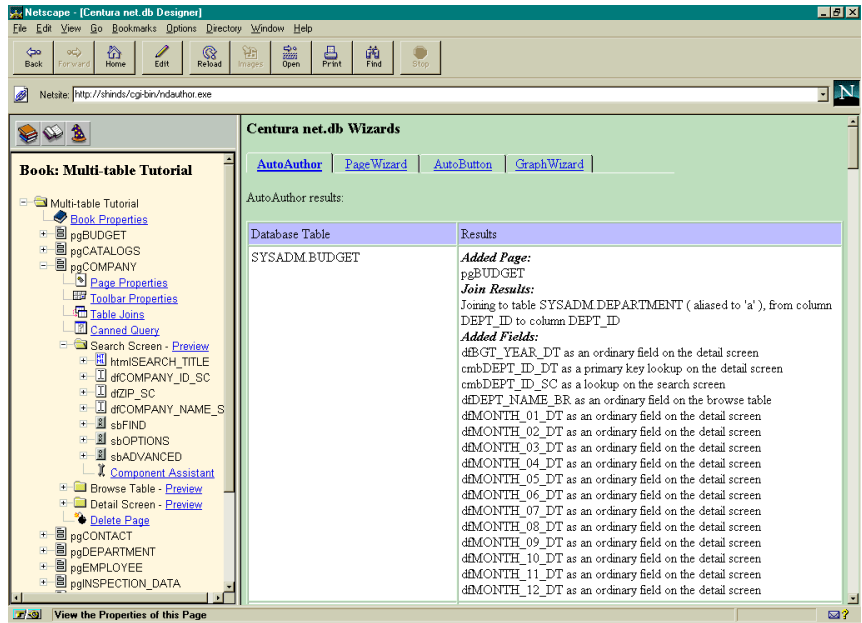
Search Screen fields have an **\_SC** appended to the component name.

Browse Table fields have an **\_BR** appended to the component name.

Detail Screen fields have an **\_DT** appended to the component name.

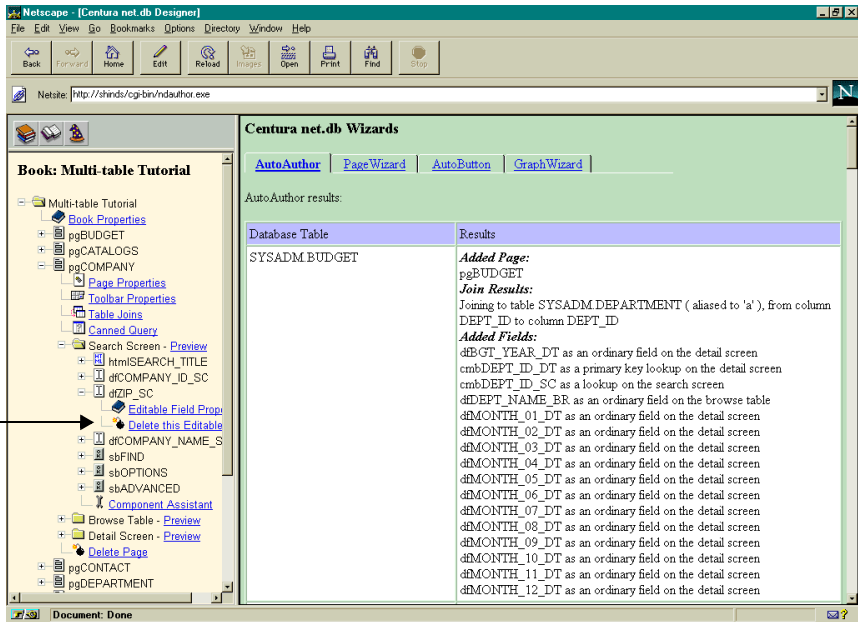
2. Click the + symbol next to **Search Screen - Preview** to expand the outline and view the Search Screen fields.





3. Click the + symbol next to the **dfZIP\_SC** field to expand the outline.
4. Click **Delete this Editable Field**.

Click here



A message appears in the right frame asking if you want to delete the selected field. Click **Yes - Delete this item**. Centura net.db confirms that the item has been successfully deleted.

- Repeat steps two through four for the following fields:

Location	Field
Search Screen	dfCOMPANY_NAME_SC <b>Note:</b> Later in this tutorial, you will be adding an auto combo box for Company Name data.
Browse Table	dfZIP_BR
Detail Table	dfLINE_DT dfTERMS_DT

## Changing field positions

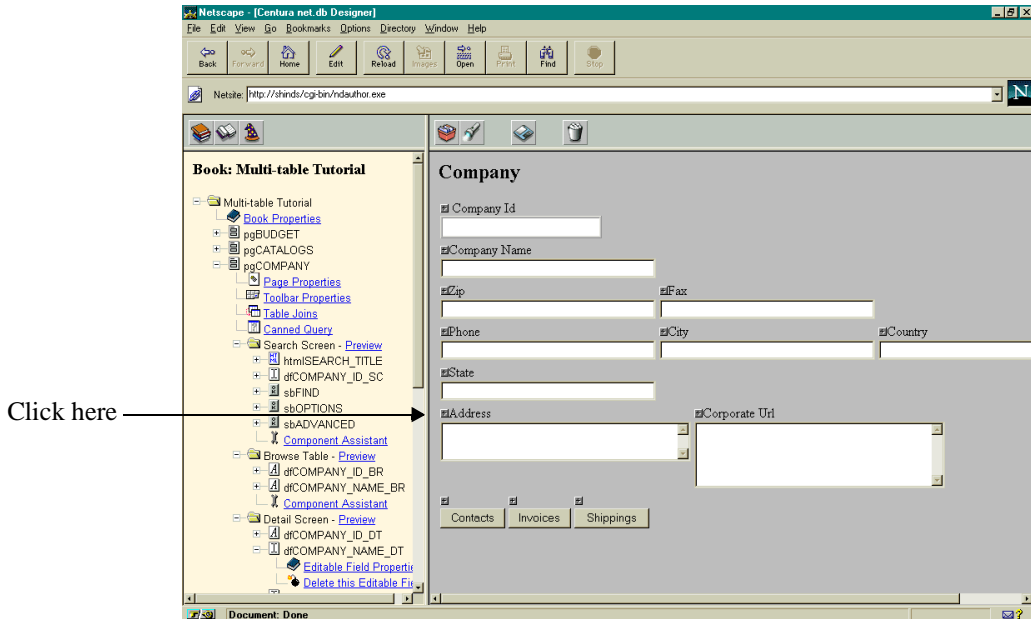
To change the position of fields on a page, perform the following steps:

1. Click the + symbol next to **Detail Screen - Preview**.
2. Click the + symbol next to the dfCOMPANY\_NAME\_DT field to expand it. Click **Editable Field Properties**. The field's property attributes appear in the right frame.
3. Click the **Position** tab. Centura net.db displays the position properties of the dfCOMPANY\_NAME\_DT field in the right frame. Use this screen to change the position of the field on the COMPANY page.
4. Change the value in the **Move to Where** field to Between dfCOMPANY\_ID\_DT and dfZIP\_DT.

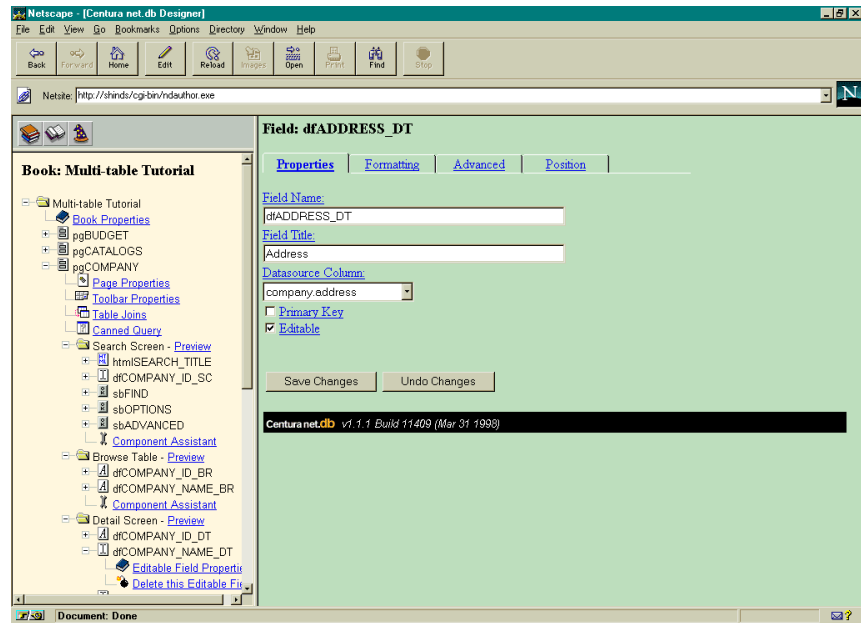
Click **Move**. Note that the position of dfCITY\_NAME\_DT in the outline has changed.

You can also change field positions from the Preview screen of the Detail Screen. To do this:

1. Click **Preview** next to Detail Screen. The Company Detail Screen appears in the right frame. Click the small box to the left of the field title Address.



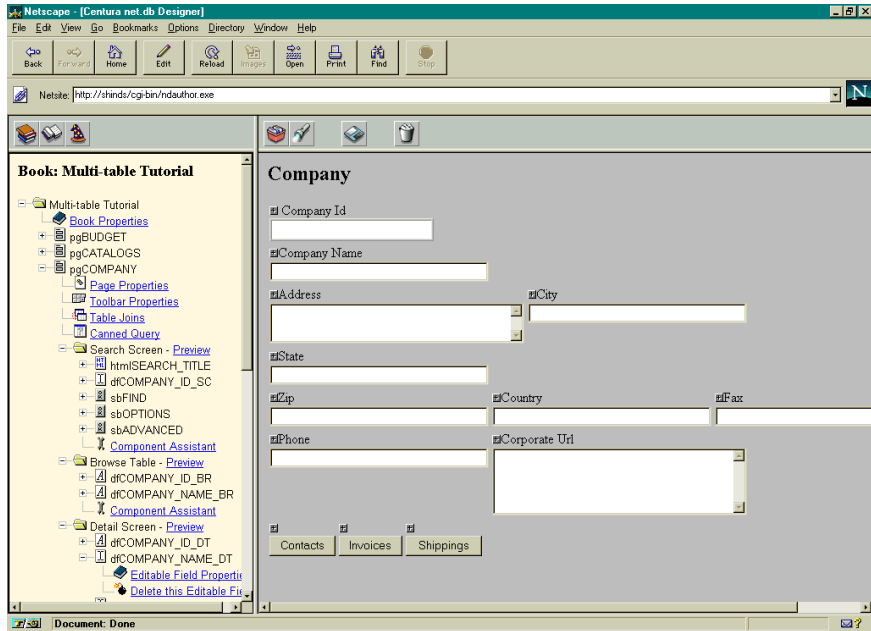
The Address field property attributes appear in the right frame:



2. Click the **Position** tab. Centura net.db displays the position properties of the dfADDRESS\_DT field in the right frame. Use this screen to change the position of the field on the COMPANY page.
3. Change the value in the **Move to Where** field to Between dfCOMPANY\_NAME\_DT and dfZIP\_DT. Click **Move**. Note that the position of dfADDRESS\_DT in the outline has changed.
4. Change the position of the following fields using the values in the table below. You can use either of the methods described above.

Field Name	Position
dfCITY_DT	Between dfADDRESS_DT and dfZIP_DT
dfSTATE_DT	Between dfCITY_DT and dfZIP_DT
dfCOUNTRY_DT	Between dfZIP_DT and dfFAX_DT

- Click **Preview** next to the Detail Screen folder to see the results of your changes.



## Starting fields on a new row

Note on the above screen that the row containing the Zip, Country, and Fax fields is crowded. To force the Zip field to appear on the previous row, perform the following steps:

- Click **Preview** next to the Detail Screen folder to view the new formatting for the Detail Screen.
- Click the small box to the left of the field title Zip.
- Click the **Formatting** tab. Formatting options for the dfZIP\_DT field appear in the right frame.
- Click the **Start New Row** box to deselect it. Click **Save Changes**.
- Repeat steps one through four using the following settings:

Field	Action for Start New Row box
dfCOUNTRY_DT	Select the <b>Start New Row</b> box
dfPHONE_DT	Deselect the <b>Start New Row</b> box

Field	Action for Start New Row box
dfFAX_DT	Select the <b>Start New Row</b> box
dfCORPORATE_URL_DT	Select the <b>Start New Row</b> box

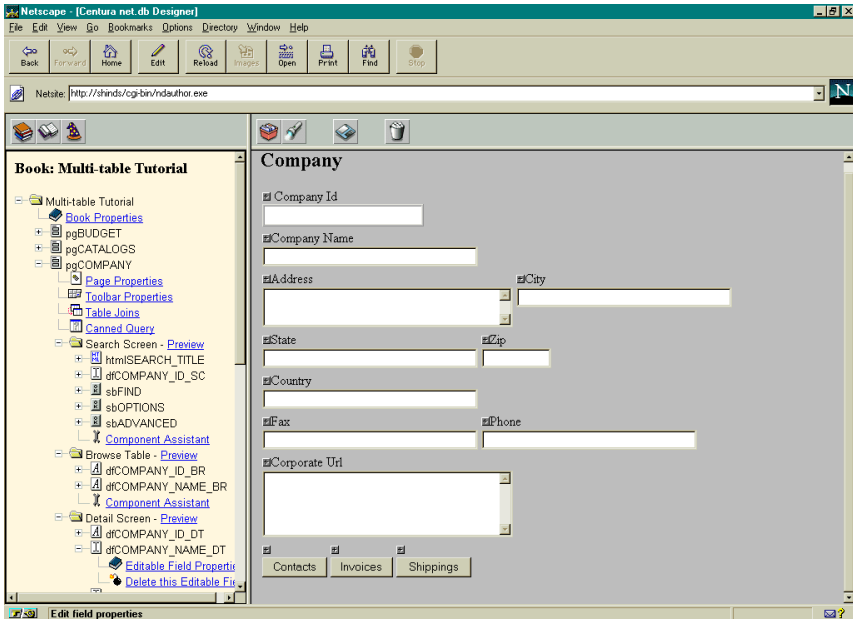
## Changing field width

The Zip field width is 35 characters, which is too long. To change field width:

1. Click **Preview** next to the Detail Screen folder to view the new formatting for the Detail Screen.
2. Click the small box to the left of the field title Zip.
3. Click the **Formatting** tab. Formatting options for the Zip field appear in the right frame.
4. Change the value in **Field Width** from 35 to 10. Click **Save Changes**.

## Previewing your work

To view the changes you have made thus far, click **Preview** next to the Detail Screen folder.



## Creating Auto combo boxes

To add combo boxes to your book, perform the following steps:

1. Click the + symbol next to **Search Screen - Preview** if the outline is not already expanded.
2. Click **Component Assistant** in the left frame outline. The Component Assistant appears in the right frame. The Component Assistant guides you through the process of adding components to your book.
3. Click **Auto ComboBox** in the Component column of the Component Assistant.

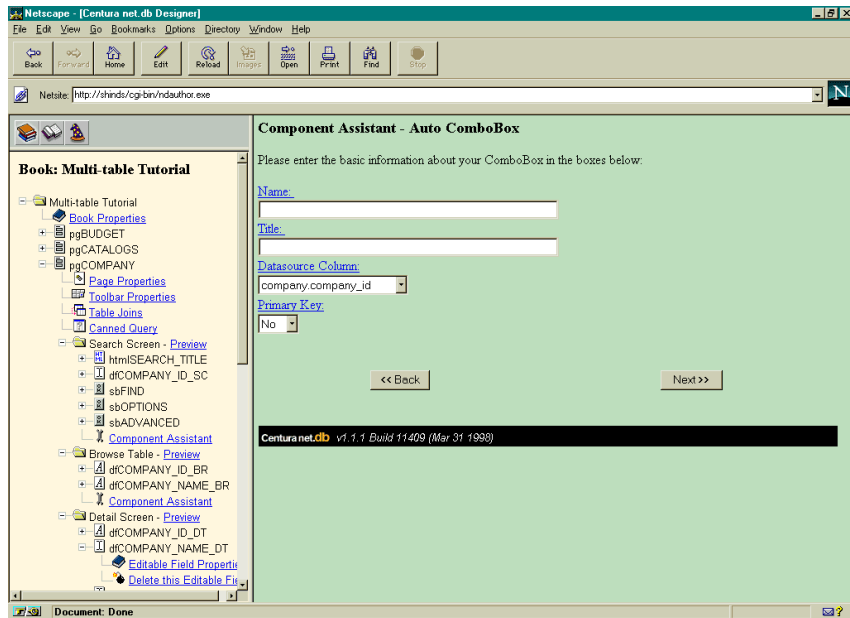
Click here →

The screenshot shows the Centura net.db Designer application window. The left pane displays a tree view of the book structure. The right pane displays the Component Assistant dialog box, which is used for adding components to a page. The dialog box contains a table of components and their descriptions.

Component	Description
<a href="#">Editable Datafield</a>	An editable field that allows the user to enter information to perform a search
<a href="#">Auto ComboBox</a>	A drop-down ComboBox whose content is retrieved from the Datasource
<a href="#">CheckBox</a>	A simple CheckBox for boolean selections
<a href="#">Auto RadioButton Group</a>	A group of Radiobuttons defined by the Datasource
<a href="#">Search Control Button</a>	Search Control Buttons are used to execute a search, or set the options for a search
<a href="#">HTML</a>	Some text or HTML to decorate your Page or give instructions to your users

Centura net.db v1.1.1 Build 11409 (Mar 31 1998)

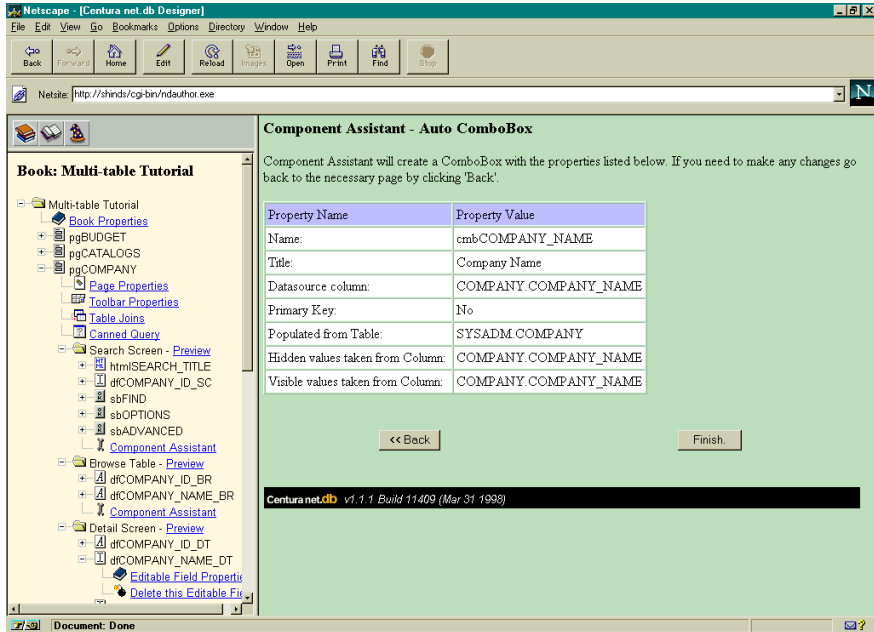
The Component Assistant - Auto ComboBox page appears in the right frame:



4. In the **Name** field, type `cmbCOMPANY_NAME`. This field identifies the field within the explorer.
5. In the **Title** field, type `Company Name`. This field identifies the page at runtime in the finished Book.
6. Change the value in the **Datasource Column** field to `company . company_name`, to associate the combo box with the table column.
7. Accept the **No** default value for the **Primary Key**. This indicates that `company_name` is not the Primary Key for the Company Table. You will learn more about Primary Keys in the next section of the tutorial. Click **Next**. The second page of the Component Assistant appears.
8. Change the **Datasource Table** field to `sysadm . company` to indicate you want to retrieve the contents of the combo box from the COMPANY table. Click **Next**.
9. Change the **Value to be stored** field to `company . company_name`. This field defines the value that is written into the database column.
10. Change the **Value to be displayed** field to `company . company_name`. Click **Next**. This field defines the value that displays in the combo box.

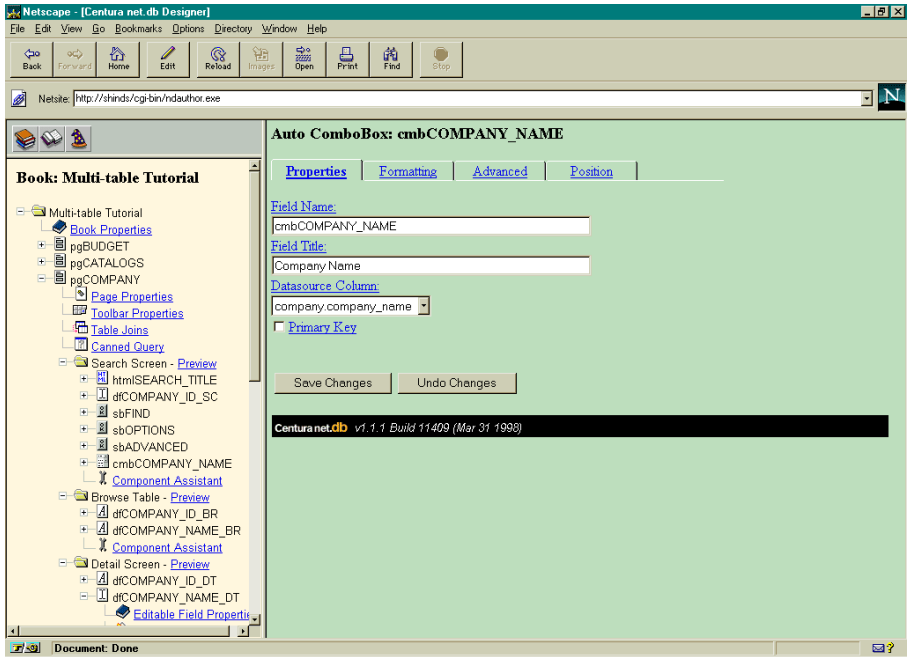


Centura net.db displays the properties it will use to create the COMPANY\_NAME combo box.



11. If correct, click **Finish**. If you have made any errors, click **Back**.

The COMPANY\_NAME combo box properties display in the right frame. You can interactively change field values from within this screen if necessary. Note that the outline has been updated to include the cmbCOMPANY\_NAME\_SC combo box.



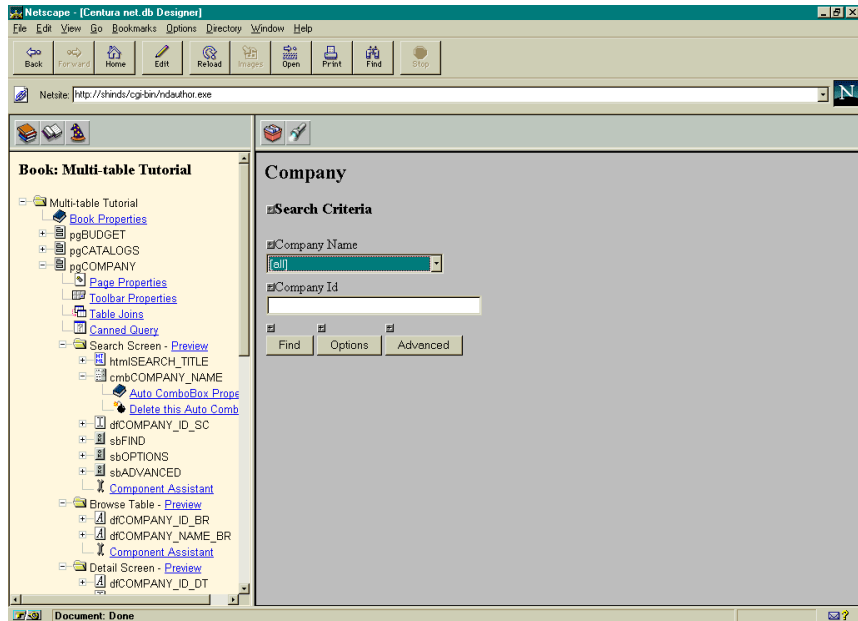
## Positioning the combo box

To change the position of a combo box on a page, perform the following steps:

1. Click the + symbol next to **Search Screen - Preview** to expand the outline.
2. Click the + symbol next to the **COMPANY\_NAME** combo box expand the outline. Click **Auto ComboBox Properties**. The property attributes appear in the right frame.
3. Click the **Formatting** tab. Formatting options for the Company Name combo box appear in the right frame.
4. Click the **Start New Row** box to select it. Click **Save Changes**.
5. Click the **Position** tab. Use this screen to change the position of the field on the **COMPANY** page.
6. Change the value in the **Move to Where** field to **Between htmlSEARCH\_TITLE and dfCOMPANY\_ID\_SC**.

Click **Move**. Note that the position of the **COMPANY\_NAME** combo box in the outline has changed.

- Click **Preview** next to the Search Screen folder. Note the combo box you just created and its position on the screen.



## Cleaning up the look of your page

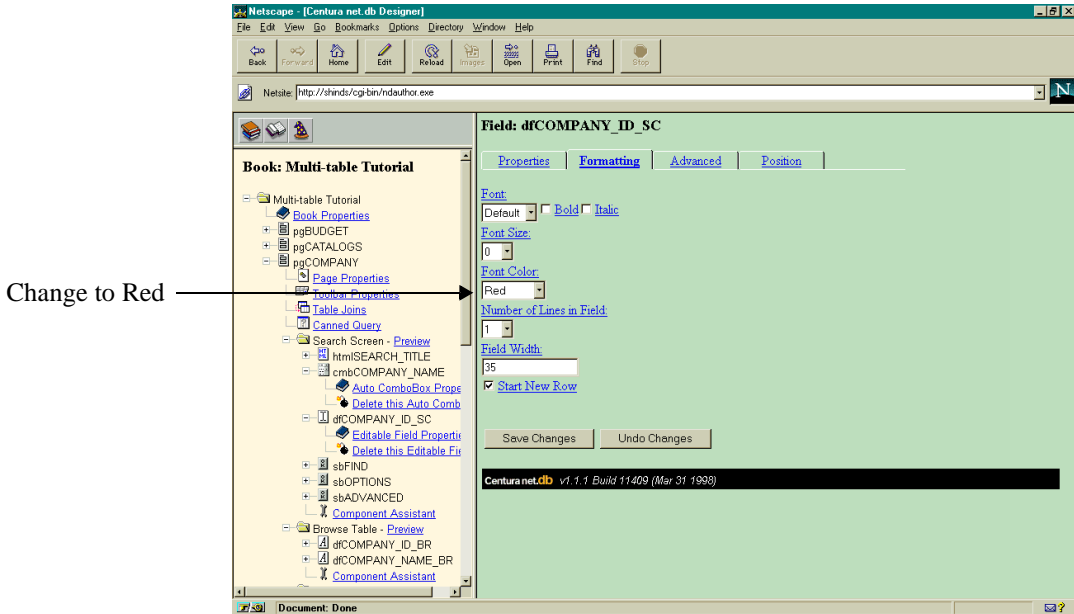
During this part of the tutorial, you highlight the primary key field `dfCOMPANY_ID_SC` and change its field width. You will also add HTML header and footer files for a more professional interface.

### Changing field color and width

PageWizard identified the `dfCOMPANY_ID_SC` field as the primary key for the `sysadm.company` table. For this tutorial, you want the `COMPANY_ID` field to stand out on the `COMPANY` page by appearing in red. To change the color of the field text, perform the following steps:

- Click the + symbol next to **Search Screen - Preview** if the outline is not already expanded.
- Click the + symbol next to the `dfCOMPANY_ID_SC` to expand it in the outline.
- Click **Editable Field Properties**. The field properties display in the right frame.

- Click the **Formatting** tab. Change the value in the **Color** field from Black to Red.



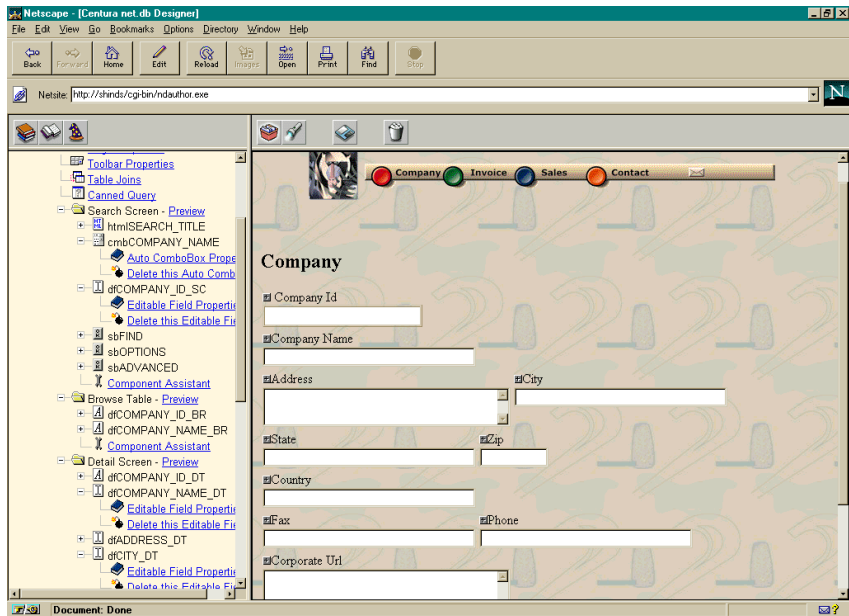
- Change the value in **Field Width** from 35 to 8.
- Click **Save Changes**.

## Adding HTML header and footer files

HTML header and footer files make your Centura net.db book look more professional. For more information on HTML files, read *Centura net.db and HTML* on page 3-16.

- Click **Page Properties** in the outline to display the COMPANY page properties. Click the **Formatting** tab. Formatting options for the COMPANY page appear in the right frame.
- Change the value in the **HTML header file** field from [None] to `h_island.htm`. Centura net.db uses the contents of this file as the background for your page.
- Change the value in the **HTML footer file** field from [None] to `f_island.htm`. Centura net.db uses the contents of this file as the footer for your page.
- Click **Save Changes**.

5. Click **Preview** next to Detail Screen. The COMPANY page now has a more professional interface.



## Formatting the Invoice page

During this part of the tutorial, you format the Invoice page by deleting combo boxes you do not need and changing the position of the remaining fields.

### Deleting fields and combo boxes

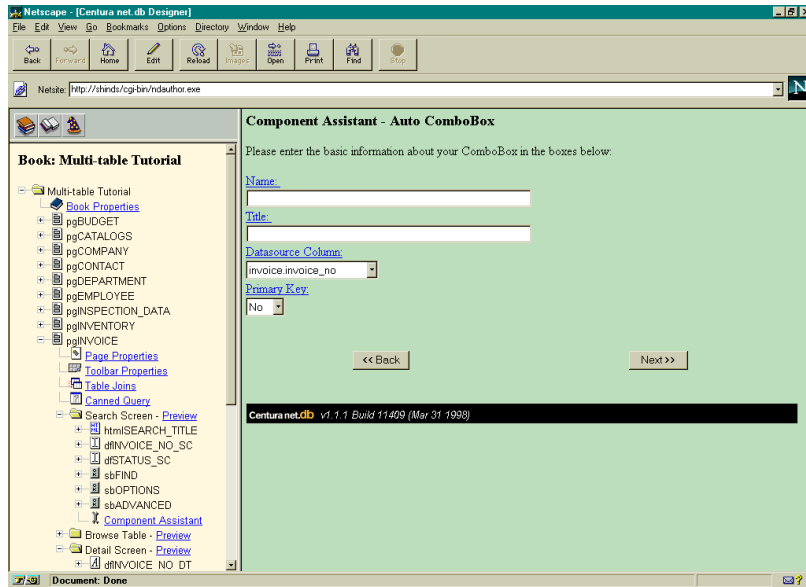
1. Click the + symbol next to **pgINVOICE** in the left frame to expand the outline and view the fields and combo boxes for this page.
2. Click the + symbol next to **Search Screen - Preview** to expand the outline.
3. Click the + symbol next to the **dfEMPLOYEE\_ID\_SC** field to expand the outline.
4. Click **Delete this Editable Field**. A message appears in the right frame asking if you want to delete the selected field. Click **Yes - Delete this item**.
5. Repeat steps two through four for the following fields:

Location	Field
Search Screen	cmbCOMPANY_ID_SC dfCOMPANY_NAME_SC
Detail Screen	dfSTATUS_DT

## Creating combo boxes

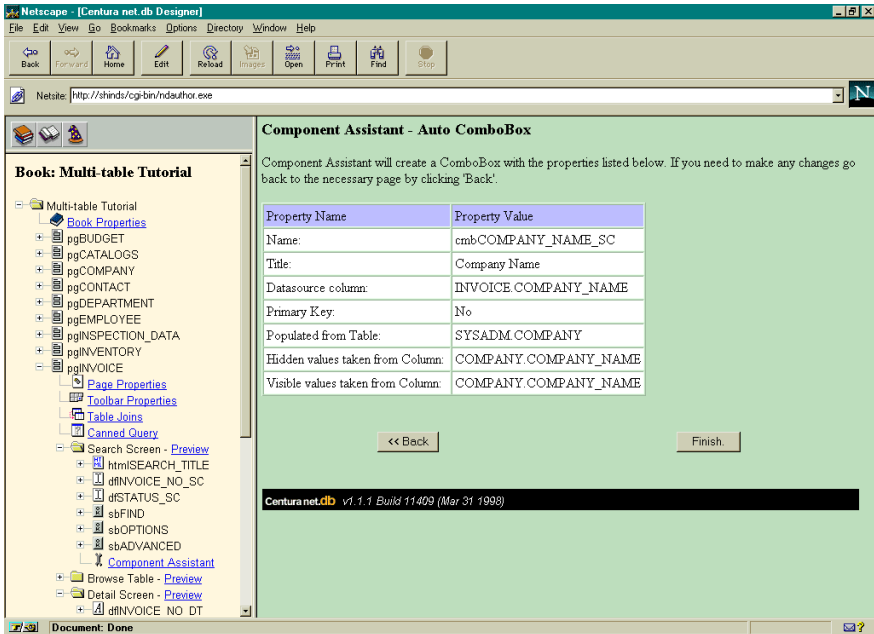
1. Click the + symbol next to **Search Screen - Preview**.
2. Click **Component Assistant** in the outline. The Component Assistant appears in the right frame.
3. Click **Auto ComboBox** in the Component column of the Component Assistant.

The Component Assistant - Auto ComboBox page appears in the right frame.



4. In the **Name** field, type `cmbCOMPANY_NAME_SC`. This field identifies the combo box within the explorer.
5. In the **Title** field, type `Company Name`. This field identifies the page at runtime in the finished Book.
6. Change the value in the **Datasource Column** field to `invoice.company_name` to associate a field with the table column.
7. Accept the `No` default value for the **Primary Key** field. This indicates that State is not the Primary Key for the Company Table. Click **Next**.
8. Change the **Datasource Table** field to `sysadm.company` to indicate you want to retrieve the contents of the ComboBox from the COMPANY table. Click **Next**.
9. Change the **Value to be stored** field to `company.company_name`.
10. Change the **Value to be displayed** field to `company.company_name`. Click **Next**.

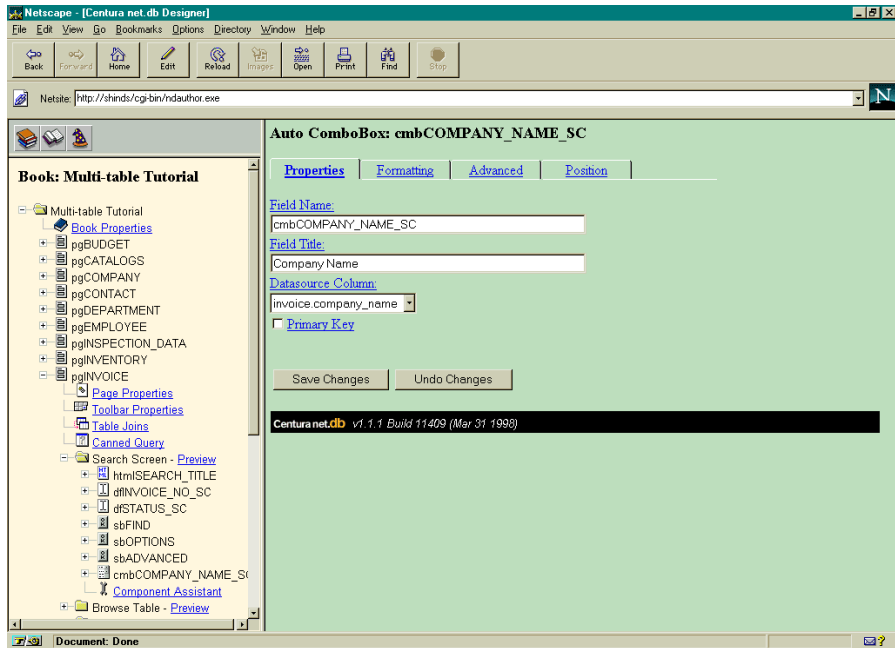
Centura net.db displays the properties it uses to create the Auto ComboBox.



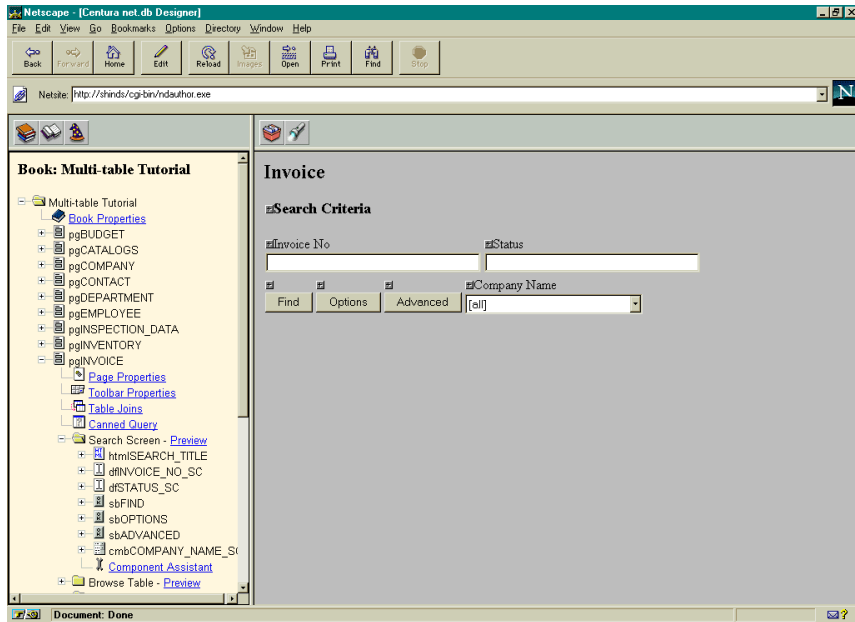
11. If correct, click **Finish**. If you have made any errors, click **Back**.



The COMPANY\_NAME combo box properties display in the right frame.



12. Click **Preview** next to the Search Screen folder to view the new combo box.

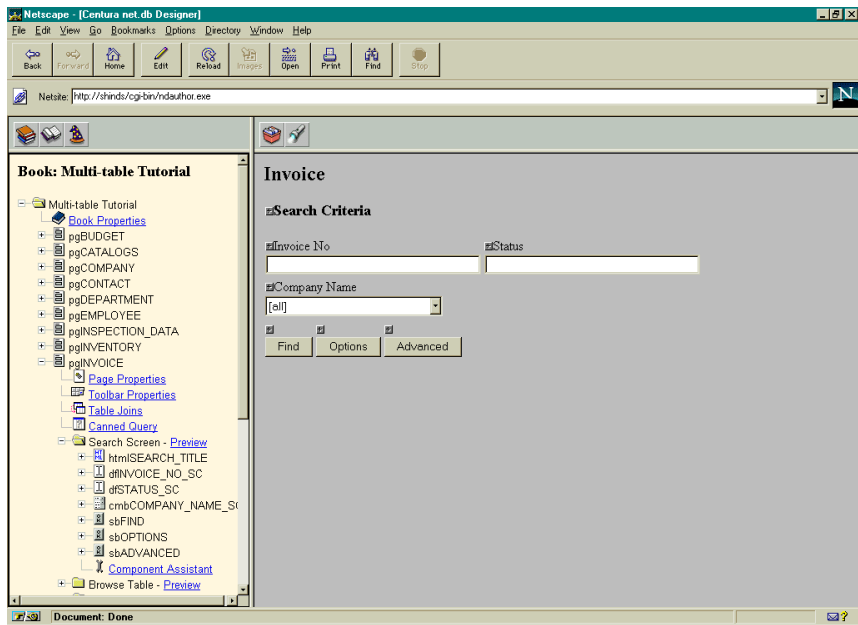


## Repositioning the combo box

To change the position of a combo box on a page, perform the following steps:

1. From within the Search Screen Preview, click the small box to the left of the field title Company Name.
2. Click the **Formatting** tab. Click the **Start New Row** box to force the Company Name combo box to the next row.
3. Click the **Position** tab. The position page for the COMPANY\_NAME combo box appears. Use this screen to change the position of the field on the COMPANY page.
4. Change the value in the **Move to Where** field to Between dfSTATUS\_SC and sbFIND.
5. Click **Move**. Note that the position of the Company Name combo box in the outline has changed.

- Click **Preview** next to the Search Screen folder to view the results of your changes.

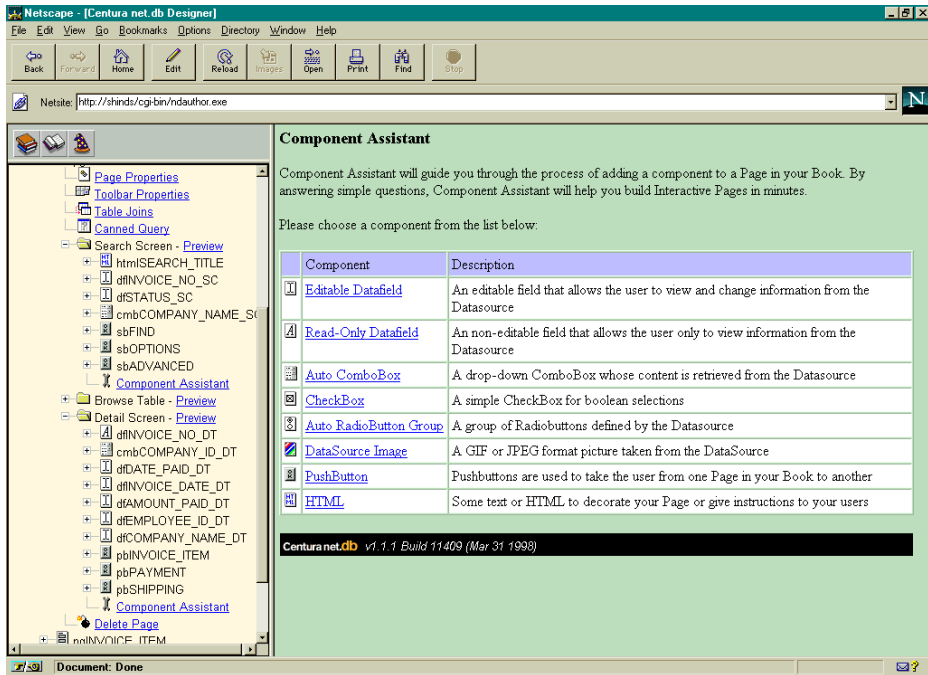


## Adding Radio Buttons

To add radio buttons to your book, perform the following steps:

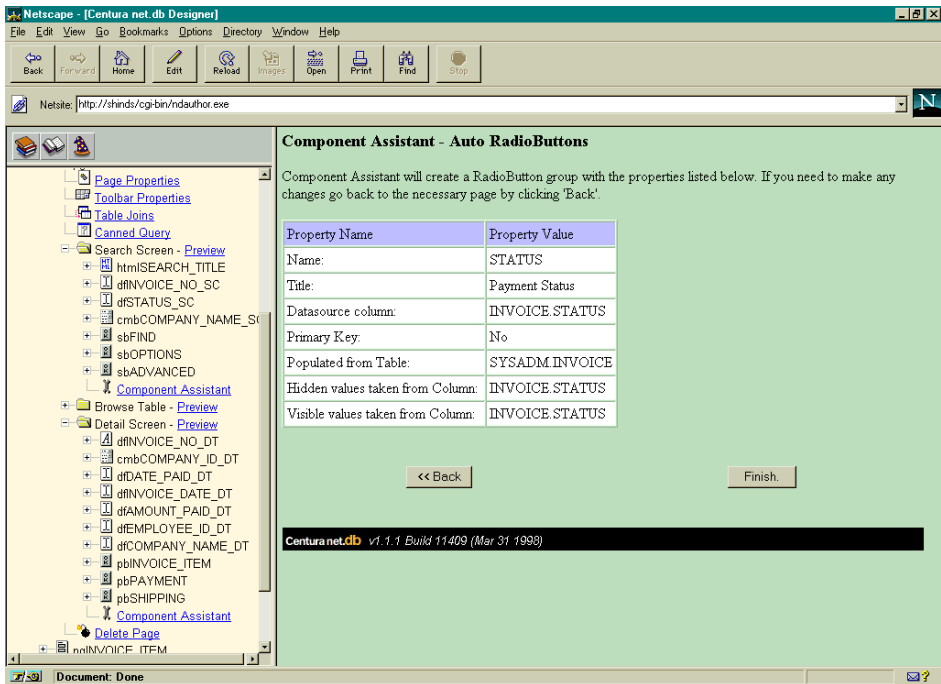
- Click the + symbol next to **Detail Screen - Preview** if the outline is not already expanded.
- Click **Component Assistant** in the outline. The Component Assistant appears in the right frame.

- Click **Auto RadioButton Group** in the Component column of the Component Assistant. The Component Assistant - Auto RadioButton page appears in the right frame.



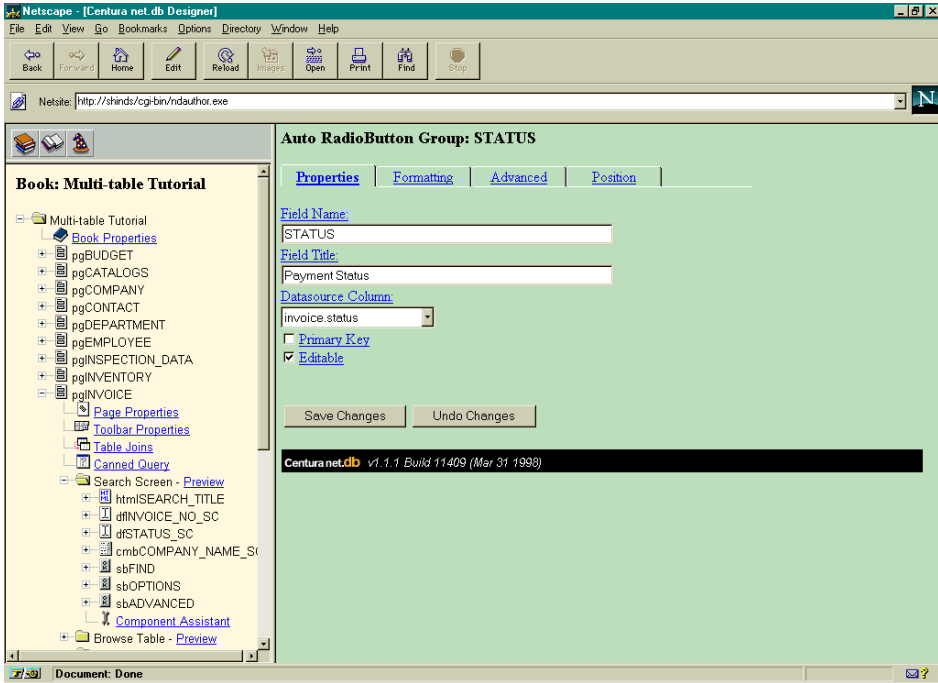
- In the **Name** field, type STATUS. This field identifies the field name within the outline.
- In the **Title** field, type Payment Status. This field displays on the Search page during runtime.
- Change the value in the **Datasource Column** field to invoice.status to associate a field with the table column.
- Accept the No default value for the **Primary Key** field. This indicates that State is not the Primary Key for the Company Table. Click **Next**. The second page of the Component Assistant appears.
- Change the **Datasource Table** field from to sysadm.invoice. Click **Next**.
- Change the **value to be stored** field to invoice\_status.
- Change the **value to be displayed** field to invoice\_status. Click **Next**.

Centura net.db displays the properties it uses to create the Auto RadioButton.



11. If correct, click **Finish**. If you have made any errors, click **Back**.

The STATUS RadioButton properties display in the right frame:

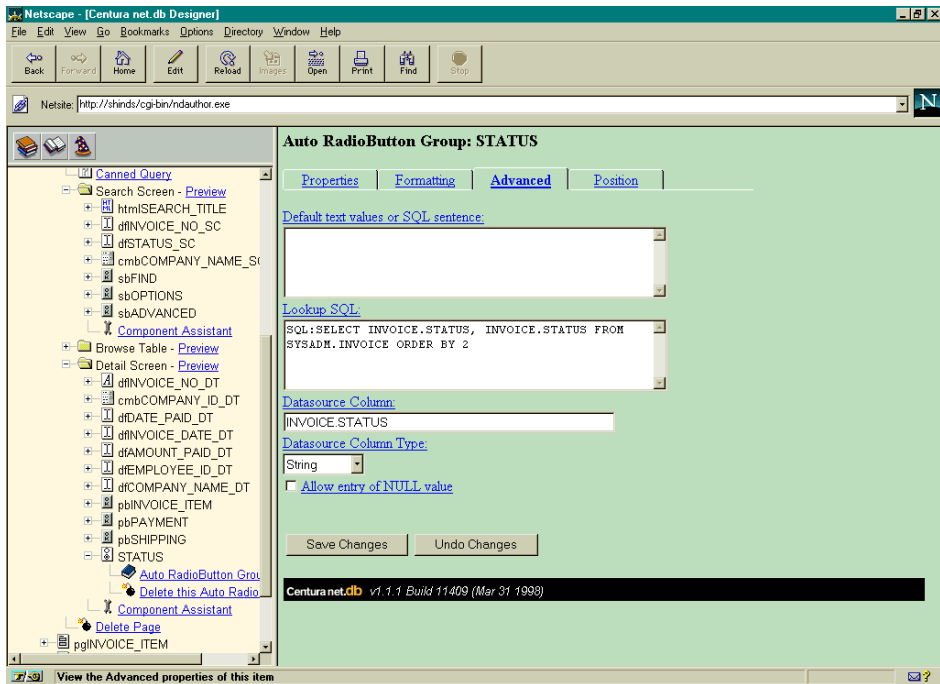


## Modifying SQL statements

Just as you edited the SQL statement for the COMPANY page, you must also edit them for the INVOICE page. To do this, perform the following steps:

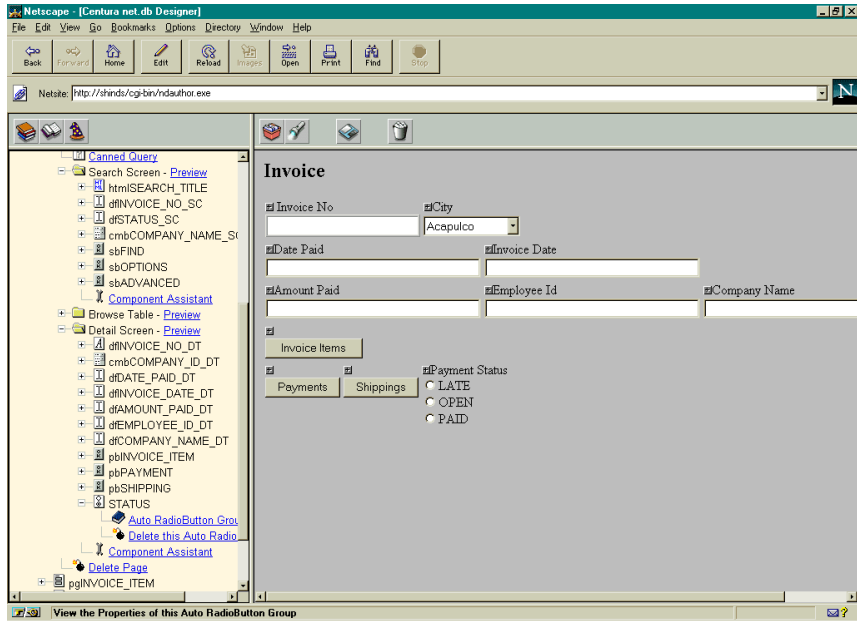
1. Click the + symbol next to **Detail Screen - Preview** to expand the outline if it is not already expanded.
2. Click the + symbol next to the **STATUS** radio button to expand the outline. Click **Auto Radiobutton Properties**.

- Click the **Advanced** tab. The Advanced properties page appears in the right frame:



- Modify the **Lookup SQL** field value to include **DISTINCT**. The modified statement should read as follows:
 

```
SQL:SELECT DISTINCT INVOICE.STATUS, INVOICE.STATUS FROM
SYSADM.INVOICE ORDER BY 2
```
- Click **Save Changes**.
- Click **Preview** next to the Detail Screen folder to view the new radio button.



## Customizing the screen

Note that in the above screen example there are some unnecessary fields and the field order could be improved.

## Deleting fields

During this part of the tutorial, you delete the Employee ID field from the Invoice Detail Screen.

1. Click the + symbol next to **Detail Screen - Preview** expand the outline.
2. Click the + symbol next to **EMPLOYEE\_ID\_DT**. Click **Delete this Editable Field**.

A message appears in the right frame asking if you want to delete the selected field.

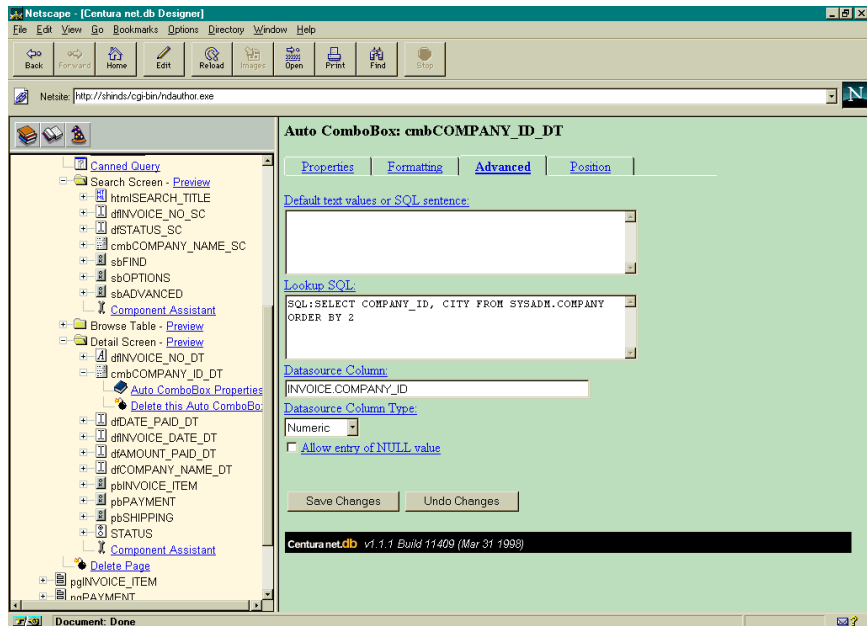
3. Click **Yes - Delete this item**. Centura net.db confirms that the item has been successfully deleted.



## Modifying the Lookup SQL

When you generated the INVOICE page using AutoAuthor wizard, Centura net.db did not correctly resolve the name for the COMPANY ID field. Note that it appears as City on the screen. To correct this:

1. In the Detail Screen folder, click the + symbol next to the **COMPANY\_ID\_DT** field to display the Properties page.
2. Click **AutoComboBox Properties** to display the Properties page.
3. Change the Field Title to Company ID. Click **Save Changes**.
4. Click the **Advanced** tab. You use this page to modify the lookup SQL for this field:



5. Modify the SQL in the **Lookup SQL** field to read:  

```
SQL: SELECT COMPANY_ID, COMPANY_ID FROM SYSADM.COMPANY
ORDER BY 2
```
6. Click **Save Changes**.

## Changing field positions

1. From within the Detail Screen Preview, click the small box to the left of the field title Company ID.
2. Click the **Position** tab. The position page for the cmbCOMPANY\_ID\_DT combo box appears. Use this screen to change the position of the field on the Invoice page.
3. Change the value in the **Move to Where** field to *Between dfDATE\_PAID and pbINVOICE\_ITEM*.
4. Click **Move**. Note that the position of the Company Name combo box in the outline has changed.
5. Repeat steps 1 through 4, using the following values:

Field	Position
dfCOMPANY_NAME_DT	Between dfINVOICE_NO_DT and dfDATE_PAID_DT
dfINVOICE_DATE	Between dfCOMPANY_NAME_DT and dfDATE_PAID_DT.

## Starting fields on a new row

Now that your fields are in the correct order, you must further define whether they are to start on a new row or not.

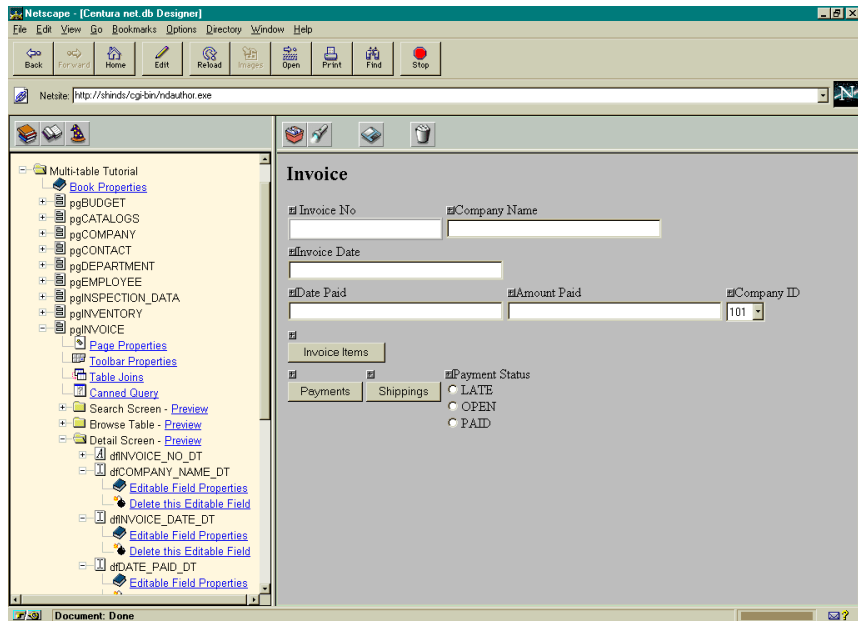
1. In the Detail Screen folder, click the + symbol next to **dfINVOICE\_DATE\_DT** to expand the outline.
2. Click **Editable Field Properties** to display the Properties page.
3. Click the **Formatting** tab. Formatting options for the Company ID combo box appear in the right frame.
4. Click the **Start New Row** box to select it. Click **Save Changes**.

Repeat step 1 through three for dfAMOUNT\_PAID\_DT field, only deselect the **Start New Row** box for this field.

## Previewing your work

You have used the Component Assistant to add combo boxes and radio buttons to the Invoice page. To see what the page looks like before you customize it further, do the following.

1. Click the + symbol next to **Detail screen - Preview** to expand the outline if it is not already expanded.
2. Click **Preview** next to pgINVOICE.



## Cleaning up the look of your page

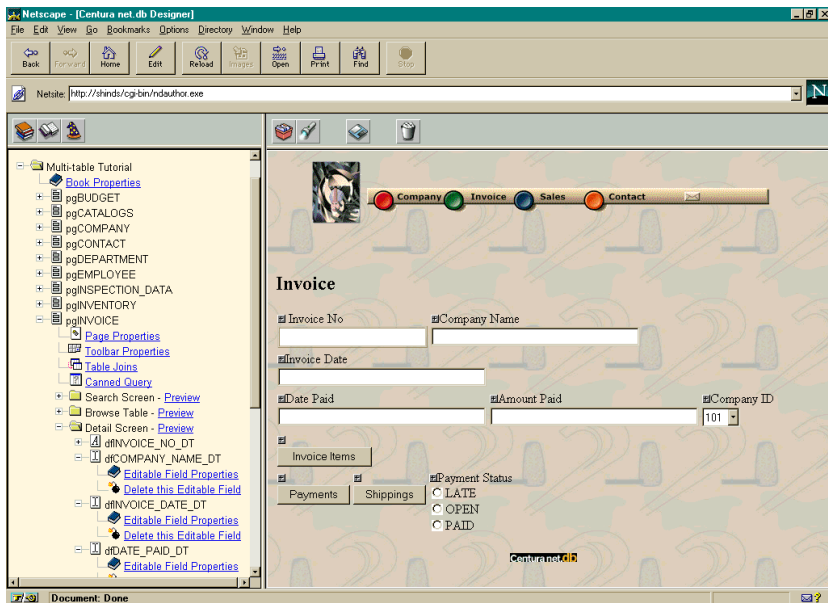
During this part of the tutorial, you customize your page by adding HTML header and footer files.

### Adding HTML header and footer files

HTML header and footer files make your Centura net.db book look more professional. For more information on HTML files, read *Centura net.db and HTML* on page 3-16.

1. Click **Page Properties** in the outline to display the INVOICE page properties. Click the **Formatting** tab. Formatting options for the INVOICE page appear in the right frame.
2. Change the value in the **HTML header file** field from [None] to `h_island.htm`. Centura net.db uses the contents of this file as the background for your page.
3. Change the value in the **HTML footer file** field from [None] to `f_island.htm`. Centura net.db uses the contents of this file as the footer for your page.
4. Click **Save Changes**.

Click **Preview** next to the Detail Screen folder in the outline. The INVOICE page now has a more professional interface.



## Adding a graph to your book

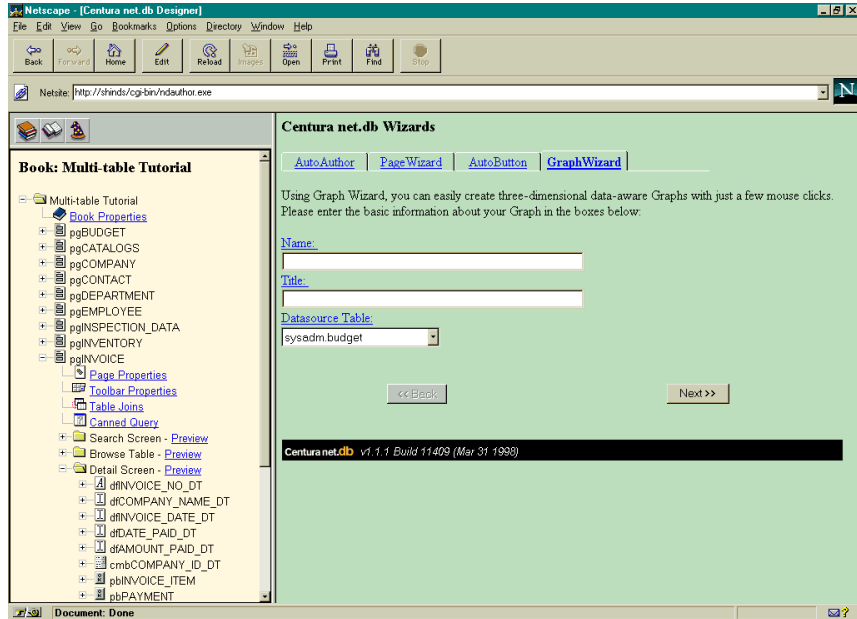
During this part of the tutorial, you use the GraphWizard to add a graph to your book. Adding graphs to your book increases the functionality for the user.

### Adding a graph

To add a graph, perform the following steps:

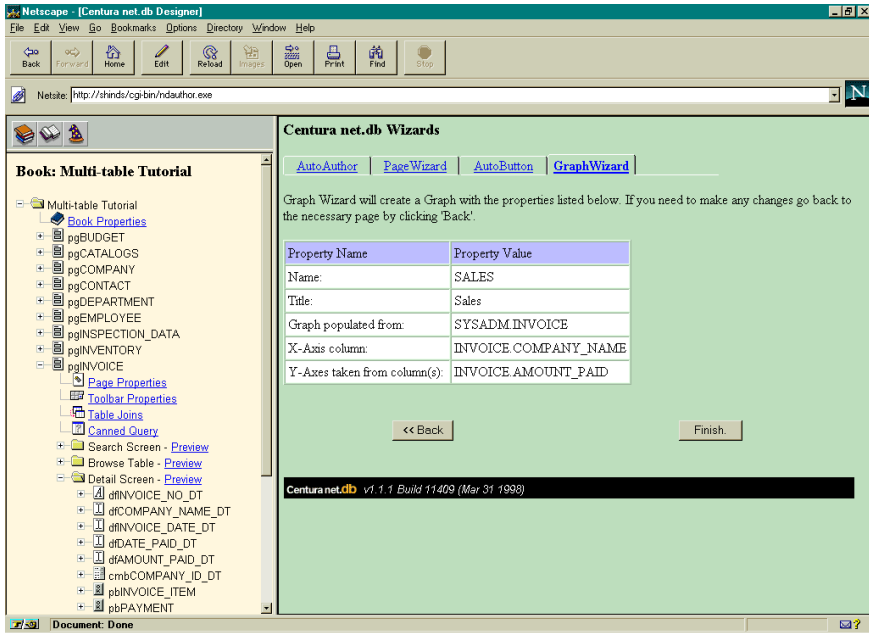


1. Click the **Wizards** push button. The Centura net.db Wizards page appears in the right frame. Click the **GraphWizard** tab:

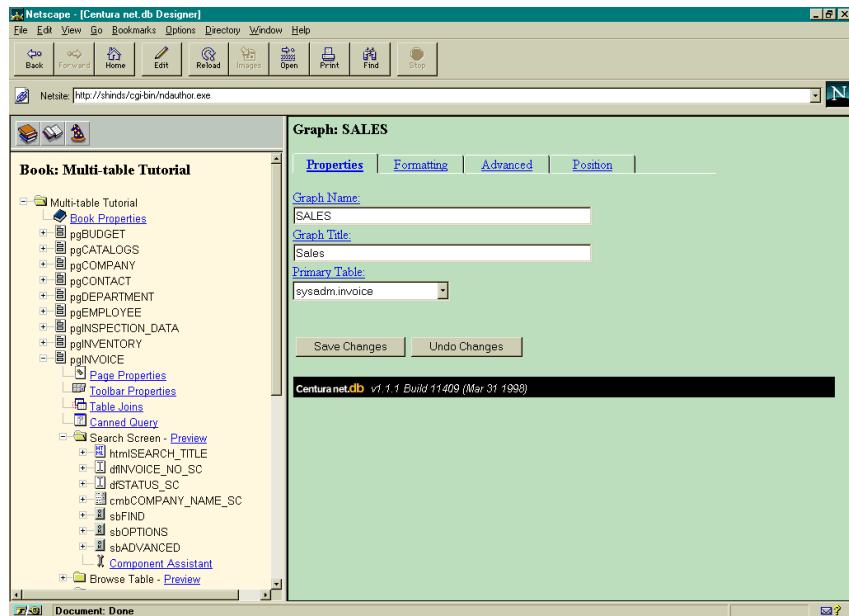


2. In the **Name** field, type SALES. This field identifies the field within the outline.
3. In the **Title** field, type Sales. This field identifies the page at runtime in the finished book.
4. Change the value in the **Datasource Table** field to `sysadm.invoice` to associate a graph with the table column. Click **Next**.
5. Change the value in the **X-Axis values taken from** field to `invoice.company_name`.
6. Change the value in the **Y-Axis values taken from** field to `invoice.amount_paid`.

GraphWizard displays the properties it uses to create the Invoice graph.



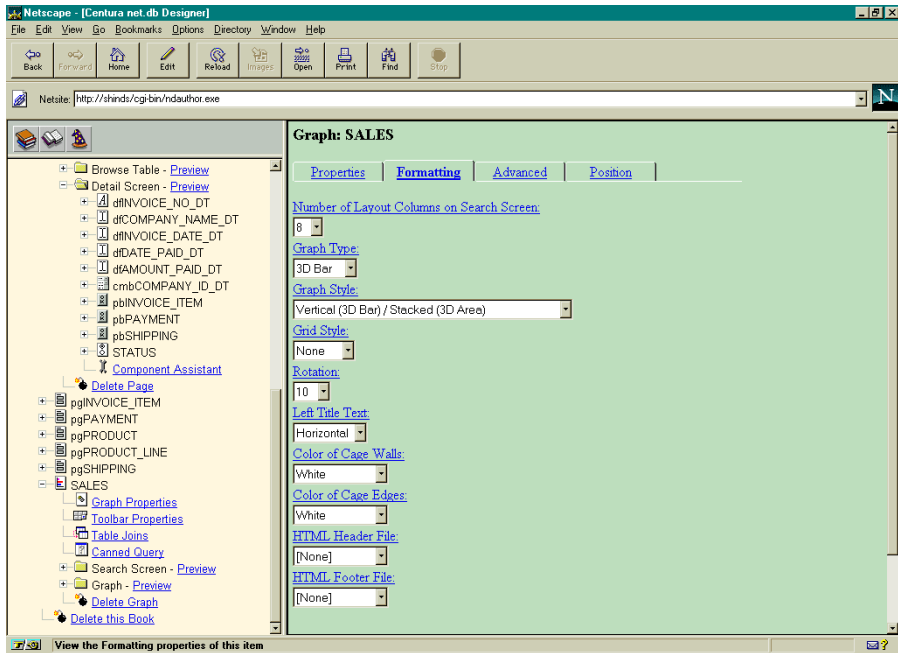
7. Click **Finish** to create the graph. GraphWizard displays the graph properties in the right frame:



## Formatting your graph

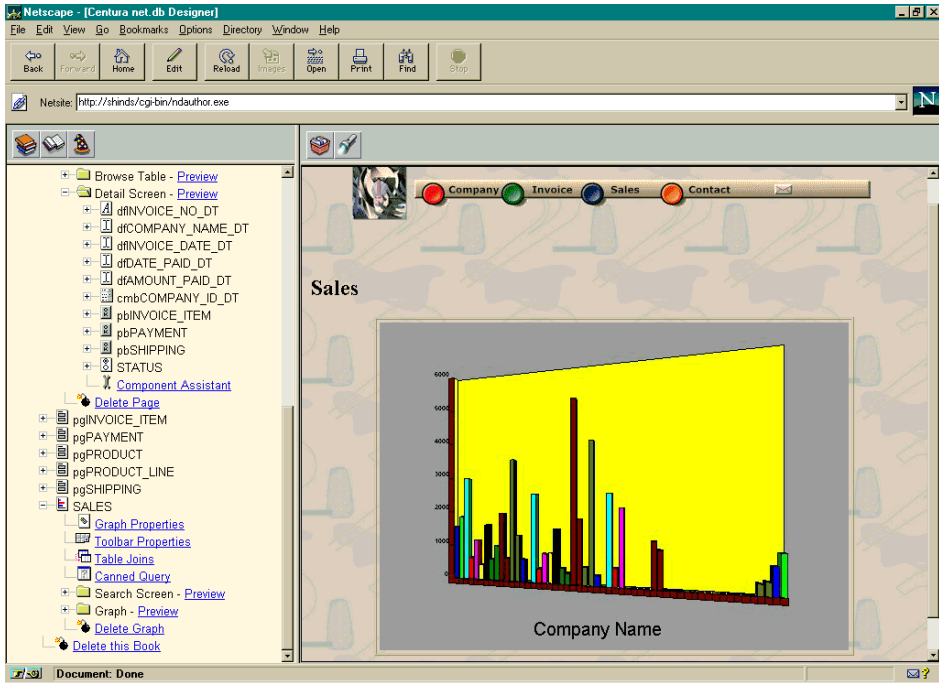
During this section, you customize the colors in the graph.

1. Click the + symbol next to **SALES** to expand the outline.
2. Click **Graph Properties** to display the properties page.
3. Click the **Formatting** tab. The Formatting page appears in the right frame.



4. Change the value in the **Color of cage walls** field to Yellow.
5. Change the value in the **Color of cage edges** field to Magenta.
6. Change the value in the **HTML header file** field to `h_island.htm`. Centura net.db uses the contents of this file as the background for your page.
7. Change the value in the **HTML footer file** field to `f_island.htm`. Centura net.db uses the contents of this file as the background for your page.
8. Click **Save Changes**.

9. Click **Preview** next to the Graph folder in the outline. The Sales graph appears in the right frame:



## Summary

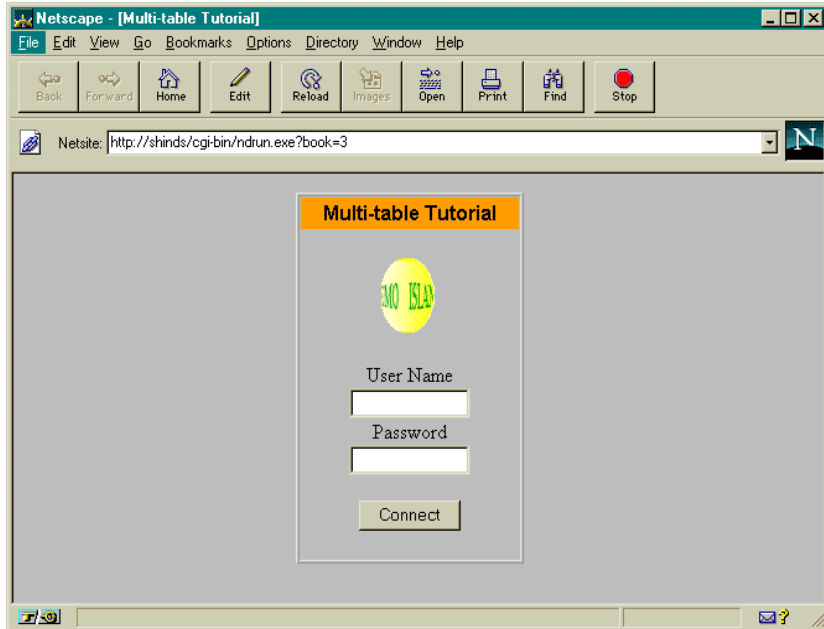
During this tutorial, you created a book comprising two pages: COMPANY and INVOICE. You then customized the pages by adding combo boxes and radio buttons. In addition, you created a Sales graph based upon the information in these pages.



## Viewing your completed book



1. Click the **Open Book** push button in the toolbar. A second browser launches and a login screen appears:



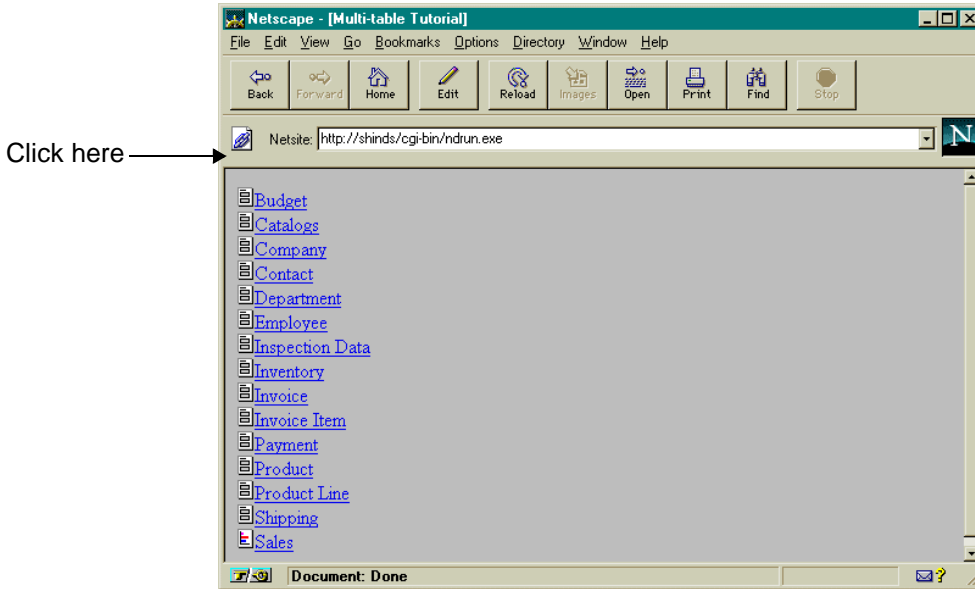
2. Enter the following values:
  - User Name: `sysadm`
  - Password: `sysadm`

---

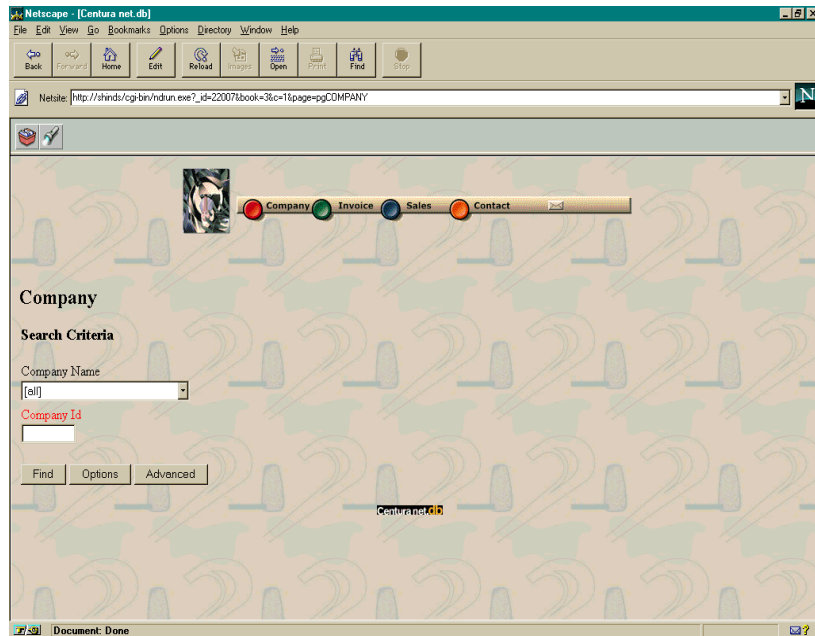
**Note:** When entering a password, only asterisks appear.

---

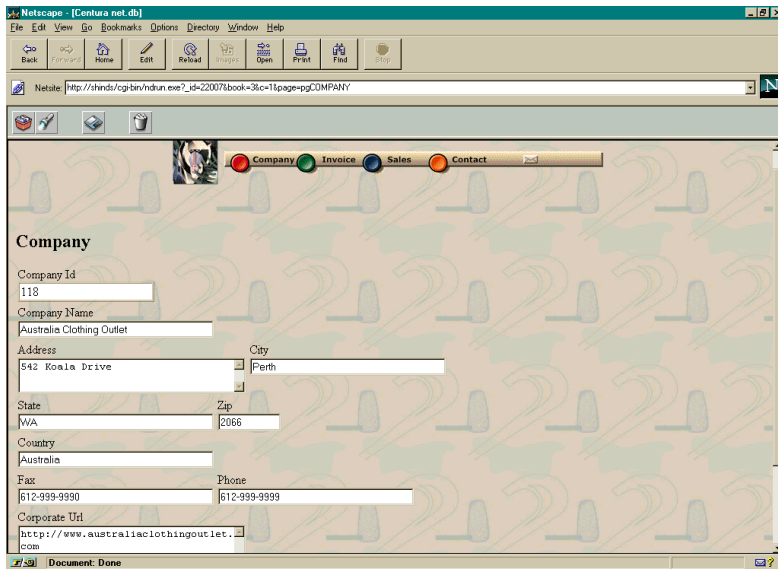
Click **Connect**. You are now running the Centura net.db Page Viewer. The index for the multi-table book appears:



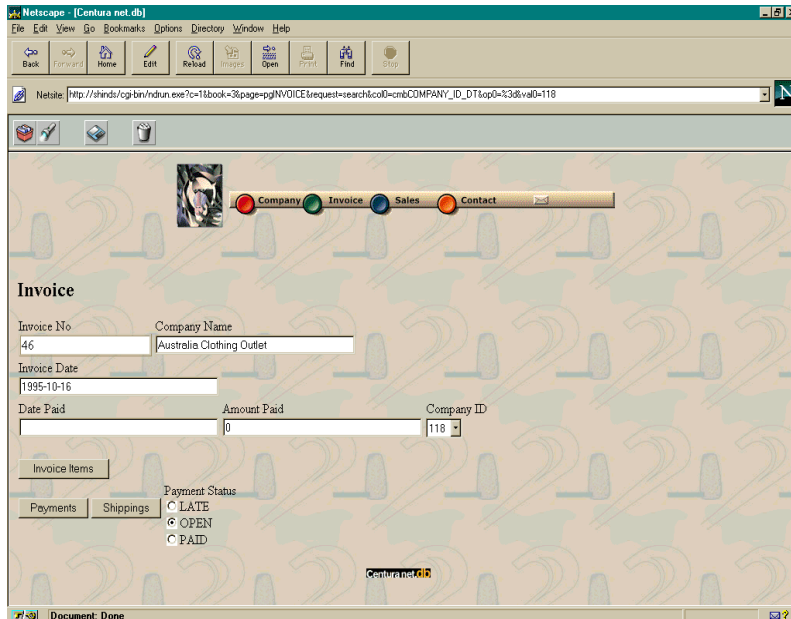
3. Click **Company**. The Company Search page appears:



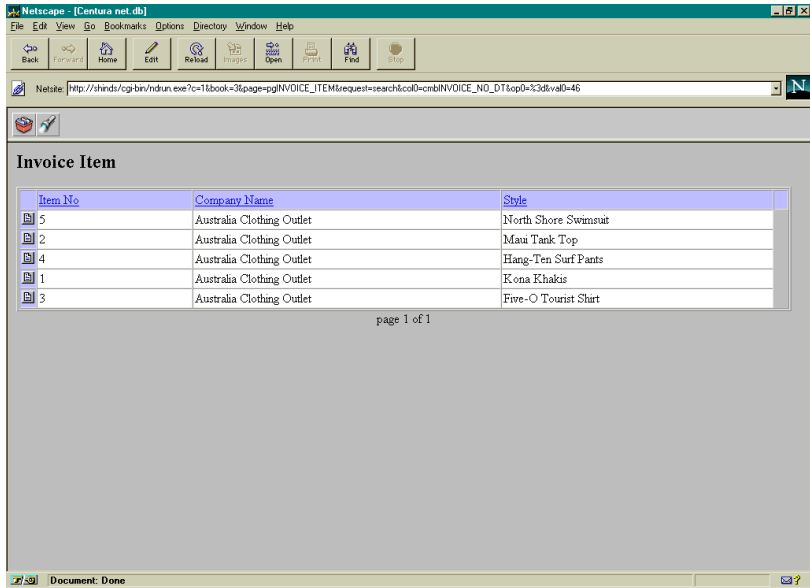
- Select **Australia Clothing Outlet** from the Company Name combo box. Click the **Find** push button. The Detail Screen for the Australia Clothing Outlet displays:



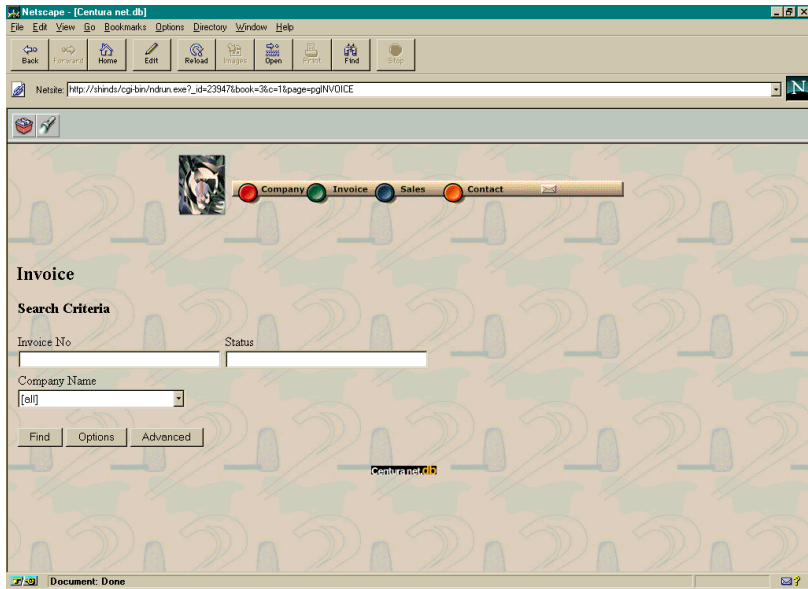
- Scroll to the bottom of the screen, and click the **Invoice Items** push button to view invoices for the Australia Clothing Company. The Invoice Detail screen appears:



- Click the **Invoice Item** push button to view the items on Invoice # 118.

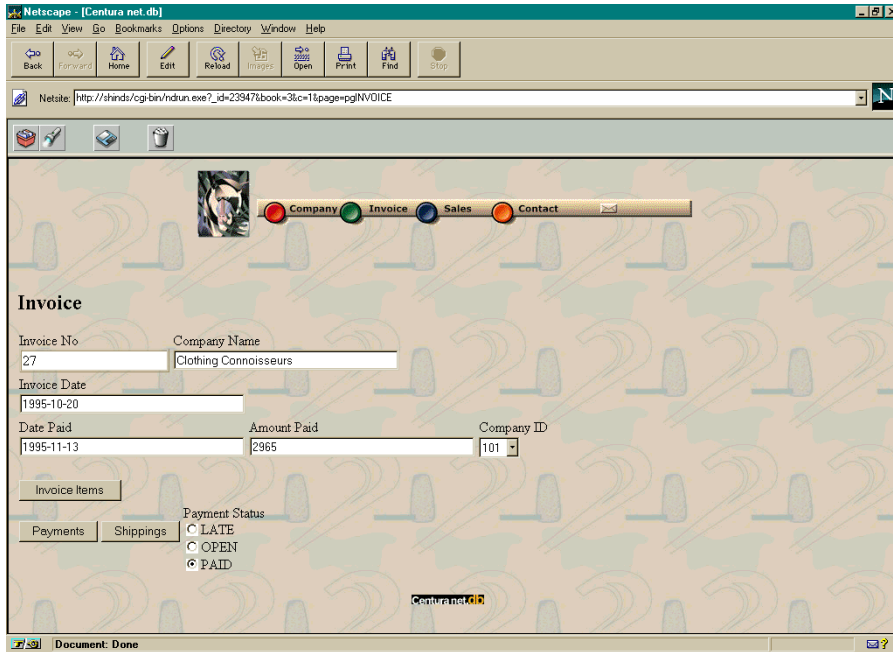


- Click the **Index** push button. You return to the index page.
- Click **Invoice**. The Invoice Search Page appears:



Enter 118 in the Invoice No field. Note that it returns the message No matches found.

9. Enter 27 in the Invoice No field. The Invoice Detail Screen appears:



## Summary

During this tutorial, you have created two Centura net.db pages and added radio buttons and combo boxes. In addition, you have created the Sales graph. You can further customize Centura net.db pages by adding push buttons and photos.

To see pages that incorporate more Centura net.db advanced features, log on to the ISLAND database and view the Island Outfitters book and the Golden Armadillo book.



# Glossary

---

## ***applet***

A Java program that runs in the context of a Java-capable browser. Java applets extend the content of Web pages beyond just graphics and text.

## ***Books***

A collection of pages corresponding to web pages.

## ***browser***

An application that knows how to interpret and display documents that it finds on the World-Wide Web.

## ***CGI (Common Gateway Interface)***

A standard that specifies how Web servers communicate with other programs running on the server. With CGI, the Web server can start a program and pass it user-specific data (such as what host the user is connecting from or input the user has supplied using HTML form syntax). The program then processes that data and the server passes the program's response back to the Web browser.

## ***extranet***

A Web server that handles confidential intranet content and communications that are available on the public Internet to, for example, business partners and customers.

## ***firewall***

A special purpose computer that examines the packets of information going over the data lines into an organization's network, and keeps out unwanted data.

## ***FTP (File Transfer Protocol)***

You use FTP to connect to a computer on the Internet using an FTP program on your local computer, browse through files available on that computer, and then download or upload files.

***HTML (Hypertext Markup Language)***

A system of marking up, or tagging, a document so it can be published on the World-Wide Web. Using a generic markup language allows a single text file to be displayed on multiple computer platforms by many types of display software, or browsers. You incorporate HTML in a document to define the function (as distinct from the appearance) of different text elements. The appearance of these text elements is not defined at the authoring stage; a browser decides how to display the text elements. An HTML document can contain hypermedia such as pictures, graphics, sounds, and animation.

***HTTP (Hypertext Transport Protocol)***

A set of messages and replies a client and server use to communicate during a hypertext link.

***hypertext***

Text containing links that, when clicked by a user, jumps to a different place, either in the same document or in another.

***Internet***

If capitalized (Internet), the world-wide system for linking smaller computer networks together. Networks connected through the Internet use a set of communications standards called TCP/IP to communicate. The Internet provides file transfer, remote login electronic mail, news, World-Wide Web, and other services.

If not capitalized (internet), any collection of distinct networks working as one.

***intranet***

A private network that uses TCP/IP-based networking for host access, workgroup collaboration, desktop and network resource management, and custom applications to maximize the enterprise's productivity.

***ISP (Internet Service Providers)***

A commercial service with an Internet gateway that provides access to the Internet for organizations and individuals.

***Libraries***

A web site that contains books and pages. In Centura net.DB, a library is associated with a single database.

***Java***

An object-oriented language that can be used to create machine-independent applications and applets.



---

***JavaScript***

A scripting language that was jointly created by NetScape and Sun. JavaScript programs are not compiled like Java applets. JavaScript programs are embedded in the HTML markup of a page. After the page is loaded, the browser interprets the JavaScript program and runs it.

***Page***

A page in Centura net.DB corresponds to a web page.

***proxy***

A proxy runs on a firewall computer and is a store-and-forward system that operates between the Internet and an internal network. All requests and responses must pass through the proxy server. The proxy server takes requests from internal or external users, examines them, and then forwards them to servers that can satisfy the requests.

Proxy servers are also used to increase performance by holding documents in a cache and then quickly passing them on to users as requested.

***TCP/IP (Transmission Control Protocol/Internet Protocol)***

Two main standards in the Internet suite of protocols. This protocol suite provides the standards, specifies the details of how computers communicate, and provides a set of conventions for interconnecting networks and for routing traffic over the Internet.

***URL (Uniform Resource Locator)***

The address of a document on the World Wide Web. A URL has three parts: the protocol, the host name, and the path name to the documents.

***World-Wide Web***

A group of Internet servers that share a set of protocols such as HTTP and conventions such as HTML. Using Web browsing software, you can activate hyperlinks in Web documents and jump from one location to another in any order you choose. You can also open documents on Web servers that contain many types of information--not just text but sound, animation, and video.



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