Using NVivo for Qualitative Data Analysis

This document covers the basic features of *NVivo*. NVivo is a comprehensive qualitative data analysis software package. The software can be used to organize and analyze interviews, field notes, textual sources, and other types of qualitative data including image, audio and video files. NVivo is publicly available in Meyer Library, Tressider and residential computer clusters on Stanford campus. To use any of the public computers on campus, you must have a SUNet ID (Stanford University Network Identifier). If you do not have a SUNet ID, visit the Web at www.stanford.edu/services/sunetid for information on obtaining one.

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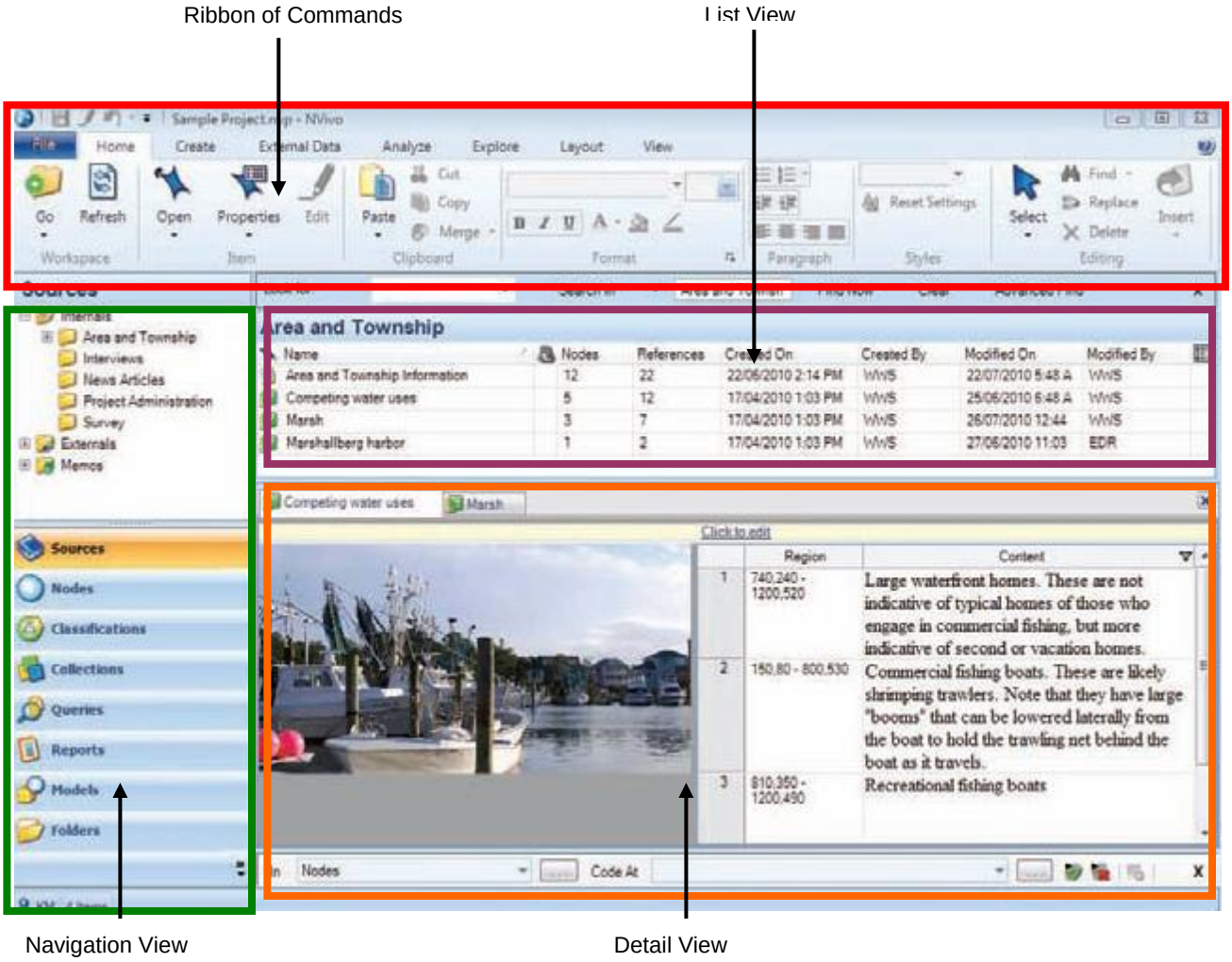
Getting started with NVivo

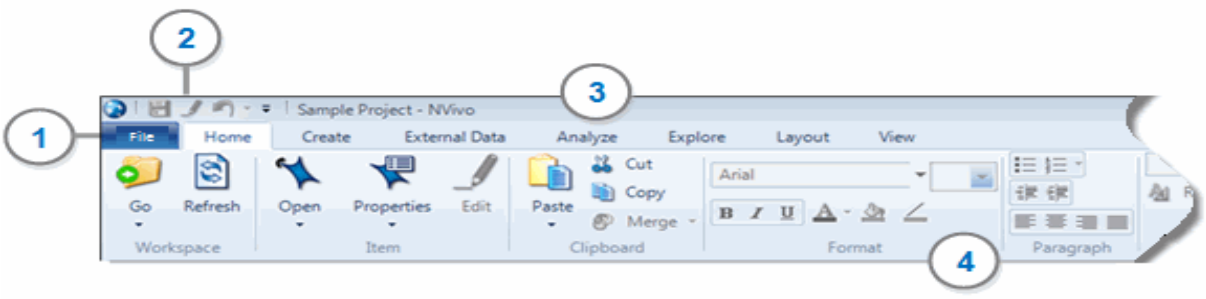
When you open NVivo, you will be asked to choose between opening an existing project or create a new one. These options are described later in this document.

The NVivo workspace looks like this when a project is open:



Ribbon of Commands

The ribbon is designed to help you locate commands. Commands are organized into logical groups, collected together under tabs similar to the 2004 version of Microsoft Office. Each tab relates to a type of activity, such as creating new project items or analyzing your source materials.



1: The **File** tab provides access to project-related commands such as open, save, and copy projects. Additional access provided are the project properties and project event log, NVivo application options, print and print preview, and license-related and software actions.

2: The Quick Access toolbar is always visible and provides quick access to the save, edit mode, and undo commands.

3: Commands are collected under tabs, which are organized under logical groups. Each tab relates to a type of activity, such as creating new project items or analyzing your source materials. The **Home**, **Create**, **External Data**, **Analyze**, **Explore**, **Layout**, and **View** tabs are always visible. The other tabs are shown only when needed. For example, the **Picture** tab is shown only when a picture content is visible.

4: Within each tab, related commands are grouped together. For example, the **Format** group on the **Home** tab contains commands for setting font size, type, bold, italics and underline. An arrow below or beside an icon indicates that there is a drop-down menu containing more commands, and when you click on the icon the drop-down menu is displayed. When an option or command is selected, orange highlighting will indicate that the option or command is in operation. Lastly, when you hover over a ribbon command, a screen tip appears which provides a brief description of the command.

Navigation View

The **Navigation View** helps you organize and provide access to different components of a project. When you click on a tab (e.g., "Sources"), its content shows in the top panel of the navigation view. In this panel, you can click on a folder to expand its content in **List View**.

Below is a brief summary of what parts of the project each of the navigation tabs lets you access:

- Sources: your research and project materials.
- Nodes: containers for concepts, topics, themes in your source materials.
- Classifications: descriptive information about your sources, nodes, and relationships.
- Collections: views (or groupings) of project items that are stored elsewhere in your project.
- Queries: search results using nodes and/or attributes, etc.
- Reports: reports and extracts to track progress or make data available for other applications.
- Models: graphic illustration of patterns you observe in your data.
- Folders: access to all folders at once

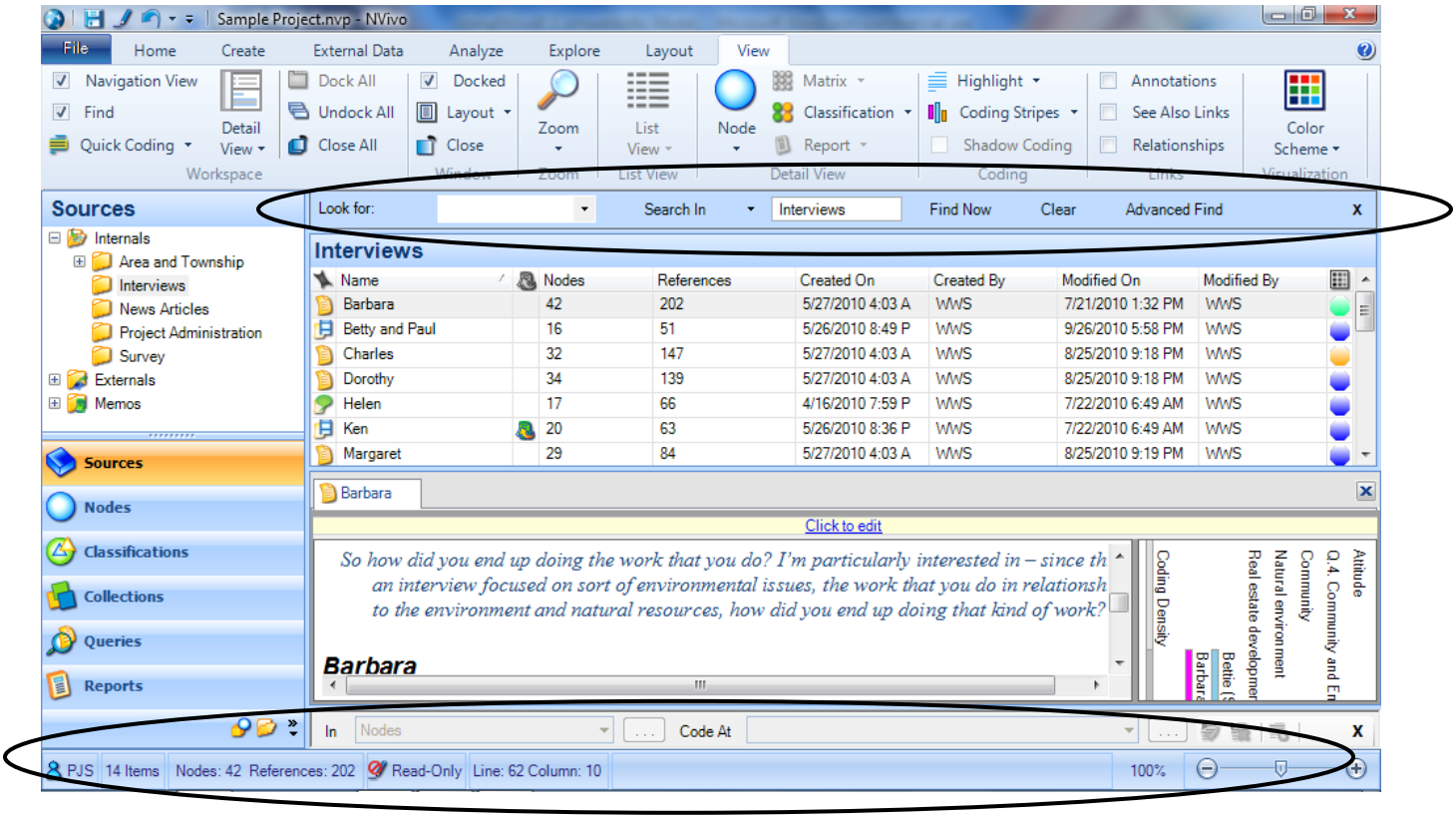
List View

This view displays the contents of your folders. You can double-click an item in **List View** to open it in **Detail View**. You can sort items (by clicking on the column headings), add selected items to sets, and delete, cut, copy, paste, print and export items. You can customize the **List View** display in the **View** tab.

Detail View

In this view you can explore the content of your project items. For example, you can annotate or code the content of a source, see all the source content that has been coded at a node, and view the results of a

query When you open a source or model, it is displayed in **Detail View** in read-only mode and a yellow information bar appears at the top of the **Detail View**. If you need to edit the source or model, click the yellow bar to switch to **edit mode**. You can open multiple items and use the tabs at the top of Detail View to move between them. To close an item in the **Detail View**, click the red X at the top-right of the **Detail View**. To close all open items, on the **View** tab, in the *Workspace* group, click **Close All**. You can also undock **Detail View**, if you prefer to work with project items in a separate window—see the commands in the **View** tab.



The NVivo workspace with the Find Bar, Quick Coding Bar, and Status Bar highlighted.

Find Bar, Quick Coding Bar, and Status Bar

The **Find bar** is displayed at the top of **List View**. It is a quick way to search for items in your NVivo project. The **Quick Coding bar** is displayed at the bottom of a **Detail View** when you are working with sources and nodes. It provides a fast way to code or uncode and allows you to code by nickname. The **Status bar** displays your user initials and contextual information that varies depending on what you are doing in your project. For example, when you have a source open in Detail View, the Status bar shows whether the source is read-only or in edit mode, the number of nodes that the source is coded at, and the total number of coding references in the source.

Working with Projects

Creating Projects

When you begin working with qualitative data in NVivo, the first step is to create a *project*. A project contains all of the documents, coding information, and associated files needed for your analysis. NVivo creates a number of necessary files when you first start your project, then you can add various types of files to the project over time.

To create a new project, launch Nvivo, and under the **File** tab in the top left-hand corner, click on **New**. The **New Project** dialog box pops up and you can enter a name and optional description of your project. Then you can select its location in the file name option. Then click **OK**. You have now created a new NVivo project.

Unless you are using NVivo on your own computer, we recommend that you create the project on a portable disk or flash drive. This allows you to work on your project at any computer instead of being limited to one particular hard drive. Note: If you create your project on a portable disk, you should frequently back up your project files onto a hard drive (the hard drive does not necessarily need to have NVivo installed on it) to prevent accidental data loss.

Opening and Saving Projects

When you want to open an existing NVivo project, click **Open** under the **File** tab after you launch the application. The names of the most recently used project also appear automatically in the **Open Project** dialog box once you launch Nvivo, and you can click on the name of the project to open it. You can also select other projects by choosing **NVivo Projects (*.nvp)** from the **File** or **Project type** list.

Remember to save your NVivo project frequently. Under the **File** tab choose Save Project. You can also save the changes by clicking the save button on the toolbar.

Working with Qualitative Data Files

NVivo Data Sources

In NVivo, "data sources" are your research or project materials—anything from video recordings of research settings, to typed memos capturing your thoughts and ideas. Sources are categorized into the following types:

Internals: primary source materials such as field notes, audio interviews, video footage, photographs or whatever raw data is relevant to your project.

Externals: 'proxy' sources representing material that you cannot import into NVivo (newspaper articles, books, web pages and so on). In an external, you can record notes or summaries relating to the material. If the external represents a file on your computer, you can link to and open the file.

Memos: records of your thoughts and observations. If a memo is related to a particular project item you can create a 'memo link' to link the two together.

Preparing Documents for Import

Text-based data such as interview transcripts, field notes, and newspaper articles (in electronic format) can be imported in .doc(x), .rtf., .txt or text-based .pdf formats. Note that when importing .pdf documents, NVivo converts them into text and removes the formatting, so be sure to check consistency

after importing. For Word documents, apply consistent heading styles to make use of some of NVivo features like auto coding.

For image, audio and video sources, NVivo supports .mp3, wma, wav, mp(e)g, mpe, mp4, avi, wmv, mov, qt, bmp, gif, jp(e)g, tif(f). Because the NVivo project file incorporates all of the sources, nodes and other project components, it can get quite sizeable if you have a lot of audio or video data. To avoid compromising software performance in this case, edit down the media files, or store them outside the project and use links to access them if needed.

Preparing for Teamwork

If you are working in a team, consider possible approaches. One approach is assigning unique user profiles—they are prompted to enter this when they first launch NVivo. Team members can work on different data sources or bring unique perspectives to the same sources—either way, you can easily merge and track by the unique user profiles the contributions made by all collaborators. Each team member can work in their own project file or you can share a single project with other colleagues.

Where coding consistency is important, agree on a node structure early and have regular discussions about how the structure is evolving. Create this structure in a 'master' project and import it into the separate project files. Use the **Coding Comparison Query** (for more detail see ***Summarizing the Data*** in this document) to regularly check for consistency between coders.

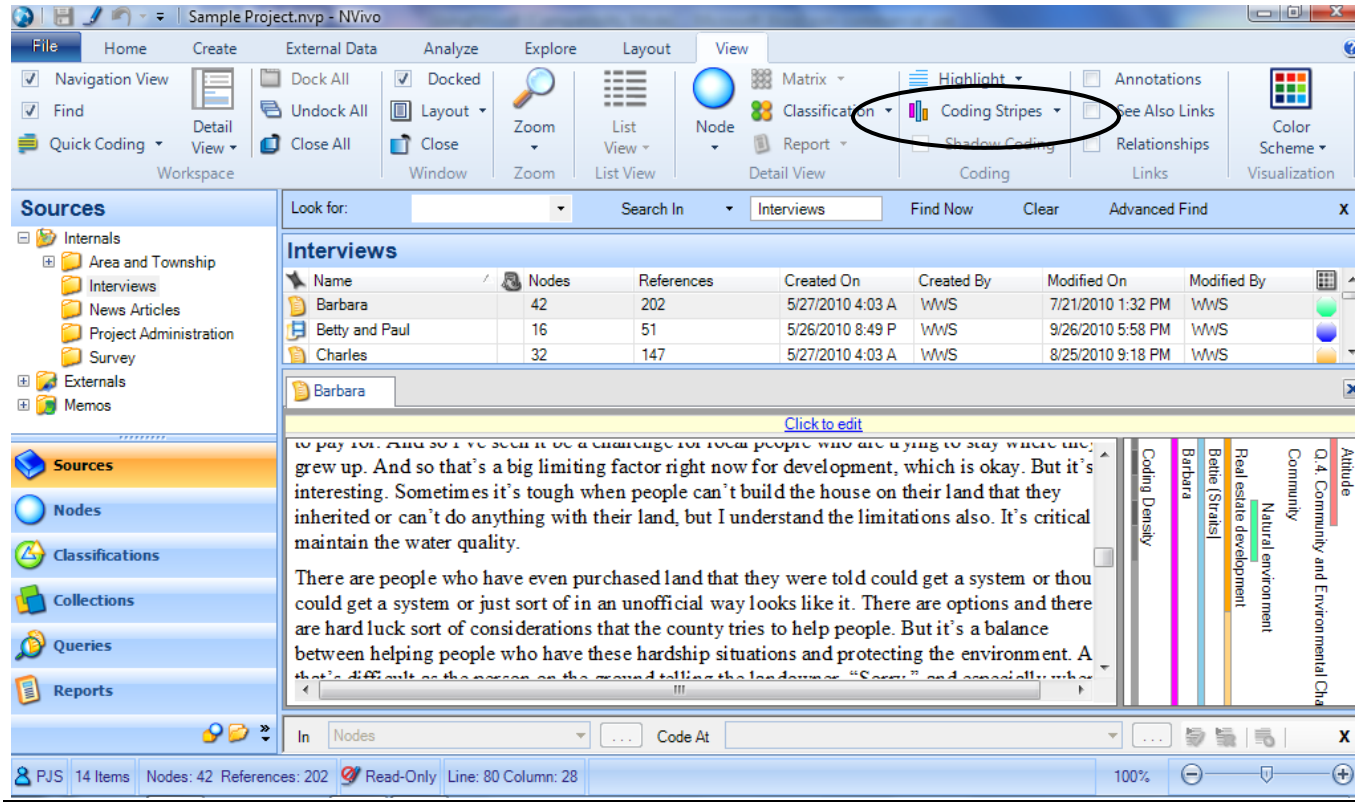
Note that a project file can only be accessed by one person at a time. If you would like to have everyone on your team to access NVivo at the same time, you will have to purchase a software program called NVivo Server.

Importing Documents

Once you have created a new project in NVivo, you must import the files you plan to analyze. If you would like to import an internal document, first choose **Sources** and the source folder in the Navigation View window. In the **External Data** tab, in the **Import** group, click **Documents**, and the **Import Internals** dialog box opens. Under **Import from**, click on **Browse** and select the file you would like to import. Click the **Open** button and hit **OK**. The **Document Properties** dialog box opens. You can then change the document name if you choose to and then click **OK**. Similarly, you can import a memo by clicking **Memos** in the **External Data**. The remaining steps are similar to importing documents. You can now view all of the documents imported into the project in the **List View** window. You can also explore them using the navigation view to see different nodes, queries, etc.

Viewing Documents

The **Detail View** window is similar to the main window of a word processing program. In this window, you can view and code your project documents. You can access the Detail View window by double-clicking the document name in the **List View** window.



The Detail View with the Coding Stripes option activated. Note the circled Coding Stripes function.

The **Detail View** window shows all of the text in the document you imported, including its original formatting if imported as a Word file or .rtf file. This is the main work space for coding documents. Similarly, to view and organize previously coded themes, or nodes, click the **Nodes** button in the **Navigation View** window. You can then navigate among your nodes in the **List View**, adding new themes as you go.

We also recommend that you activate the *Coding Stripes* option. This function shows you which sections of the text have been coded under which nodes, so you can review your earlier coding at a glance. To include this function, go to **Coding Stripes** under the **View** tab, and select one viewing option.

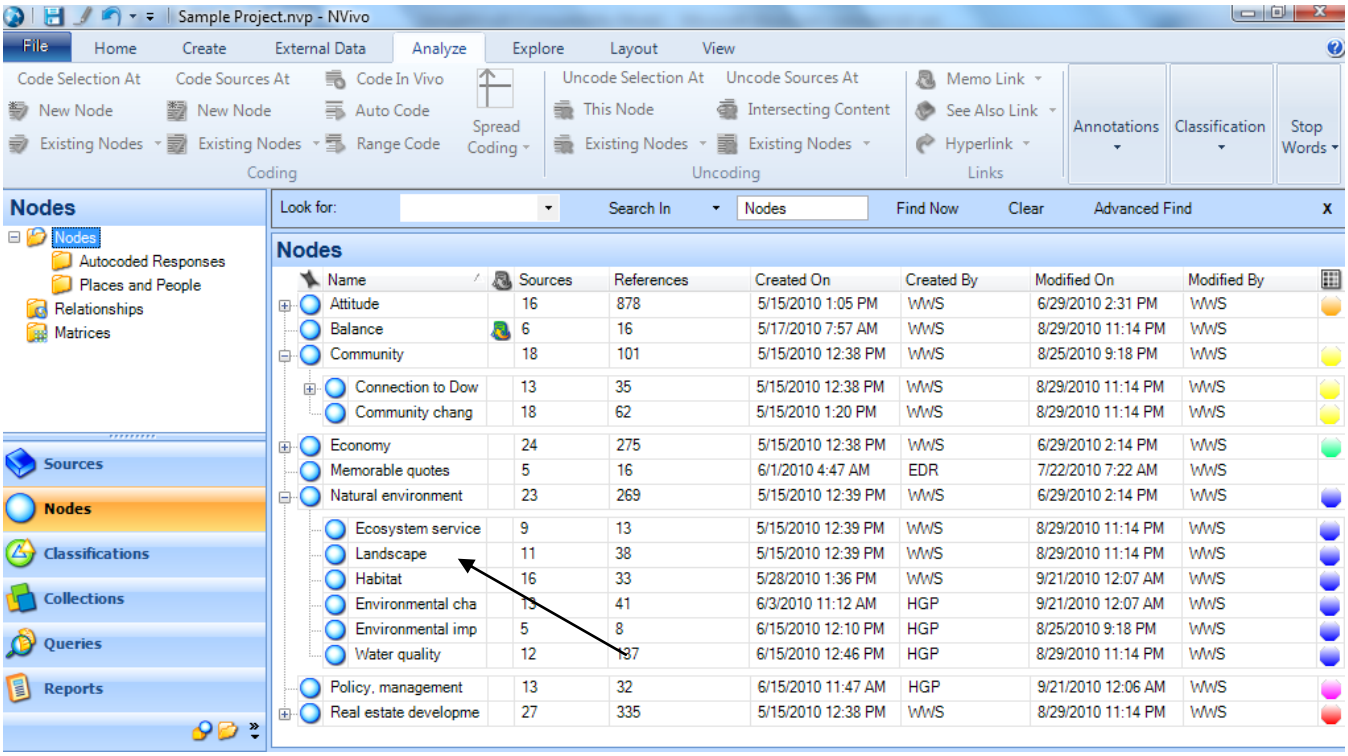
Working with Nodes

Types of Nodes

Before you begin coding your data, you should familiarize yourself with the concept of a *node*. This is the term used by NVivo to represent a code, theme, or idea about your data that you want to include in your project. You can also create *node hierarchies*—moving from general topics (like a parent node) to more specific topics (like a child node). If you are coding interviews about trust between doctors and patients, for example, you might want to have a node called "Trust," under which rest two nodes called "High Trust" and "Low Trust." You can then code each quote about the theme of trust under any of the three nodes.

Creating Nodes

When you want to begin creating nodes, click on the **Nodes** button in the **Navigation View** window and then right-click in the **List View**. A variety of buttons related to nodes will appear and you can create a node by selecting the **New Node** option. To create a node hierarchy, you can organize nodes by clicking and holding and then dragging nodes from one to another.



The List View window, with a node hierarchy highlighted.

You can also create nodes by using the ribbon of commands.

Browsing Nodes

Once you have created a node and coded some text under it, you can click on **Nodes** in the **Navigation View** window at any time to view all quotes associated with the node across all documents in the project. To browse a node, double-click on it and view it in the **Detail View** window. The resulting document containing quotes is very useful and can be printed out if desired.

Coding Qualitative Data

The work of creating nodes is done with using **Nodes** in the **Navigation View** window and the **Create** and **Analyze** tab in the ribbon of commands. Another approach is to highlight the text using the mouse and right-clicking the mouse so that the option **Code Selection** appears. You can then select one of three options: **Code Selection at Existing Nodes**, **Code Selection at New Nodes**, and **Code Selection at Current Node**. You can also **Code In Vivo** by right-clicking on the highlighted text. Coding In Vivo means you create a node name out of the selected text (up to 256 characters).

Some researcher use pre-constructed coding schemes when they code their data. Other people use a "bottom-up" approach by reading their project documents and creating codes as they go, allowing themes to arise from the data. Here are a few ways to code the documents using different approaches.

Coding the Document at Existing Nodes

Choose **Nodes** and in the **Navigation View** window, which shows where you can generate a pre-constructed coding scheme and view all pre-existing nodes organized by type. The specific nodes can be viewed in the **List View** window. To code a segment of text in a project document under a particular node, highlight the text using the mouse and drag the highlighted text to the desired node. When the cursor is positioned over the node, release the mouse button. The highlighted text will change color, and the relevant node now associated with the text will show up on the Coding Stripe to the right of the browser. You can then assign multiple codes to the same segment of text using the same process. To see which quotes within the currently open document are associated with a certain node, click on the **Nodes** on the left. Associated text segments will be highlighted in color. The Coding Stripes area of the window shows the same information.

Creating Nodes within the Detail View Window

If you prefer to generate themes as you code project documents rather than using an existing coding structure, you can create nodes "on the fly" within the **Detail View** window. First highlight the text that you want to associate with the new node. Then on the **Quick Coding** bar at the bottom of the **Detail View** window, select the location of the node in the left-hand box and enter or select a node in the right-hand box. You can code or uncode at the selected node by using the buttons on the right-hand side of the bar. You can also hit ENTER to code at the current node. To quickly Code In Vivo, select the button that is located on the far right-hand side. The content is then coded at the node. If you open the node by double-clicking on it, you can see the coded content.

Auto Coding Structured Content and Range Coding

When your sources share a similar structure like question/answer interviews or consistent paragraph styles, auto coding provides a fast way to code your sources.

If your sources have a consistent paragraph style with the same headings (H1 and H2, etc.), you could auto code to create a node for each question that is based on the same heading. You can apply consistent headings in Microsoft Word before importing documents into NVivo. In the **List View**, select the text based sources you want to auto code. On the **Analyze** tab, in the *Coding* group, click **Auto Code**. The **Auto Code** dialog box opens. From the **Code** by list, select **Paragraph Style**. From the **Available paragraph styles** list, select the styles you want to use for coding. Click the right arrow button **>>** to add the styles to **the Selected paragraph styles** list. Note: A node is automatically created for each paragraph that is formatted in the selected style, and the text under the style is auto coded at the node. The order of the styles in the list determines how they are nested in the node hierarchy—the first style is the parent of the second and so on. Under **Code at Nodes**, select where you want to store the newly created nodes. To finish auto coding, click **OK**.

You can also auto code 'by paragraph' if one or more text based sources are tightly structured—for example, paragraph 1 in each document is about fossil fuel and paragraph 2 is about government policy. NVivo makes a node for each paragraph and uses the paragraph number as the node name. You can rename the nodes as required.

Where your sources are already structured by theme or topic you may want to use range coding. For example, code paragraphs 1-5 at the node *conservation* or transcript rows 2-4 at the node *sanctuary*. Range coding also supports paper-based coding—for example, you can print out a document with the paragraph numbers displayed, mark up the text to code and then range code in NVivo.

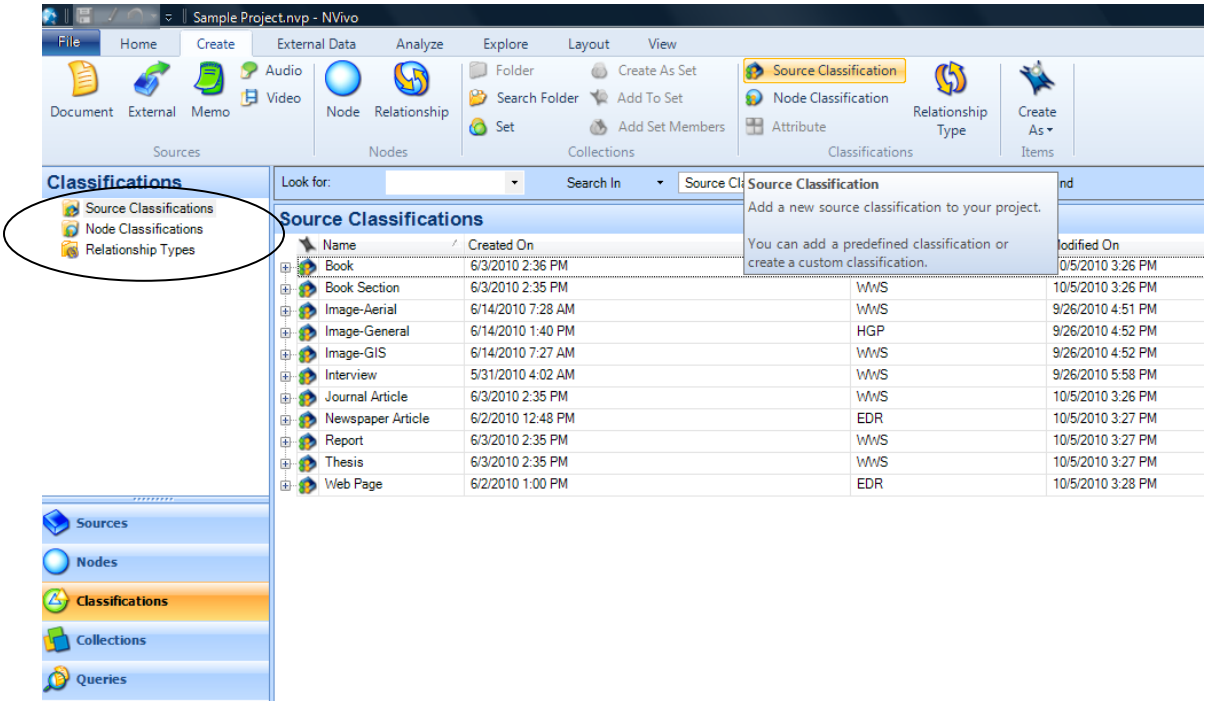
Creating Memos

Memos are imported or created in the same way as documents—except that they are stored in the **Memos** folder under the **Sources** button. A memo may be about your project as a whole or it could be 'linked' to a particular project item. For example, you could create a memo describing the context of an interview. Here is how you can create a linked memo while working in a source:

First, in **Navigation View**, under **Sources**, click the *Memos folder*. On the **Create** tab, in the *Sources* group, click **Memo**. The **New Memo** dialog box opens and you can enter a name and description for the memo. Click **OK** to finish creating a memo. You can also import memos to your project in the **External Data** tab by clicking on **Memos** in the *Import* group.

Summarizing the Data

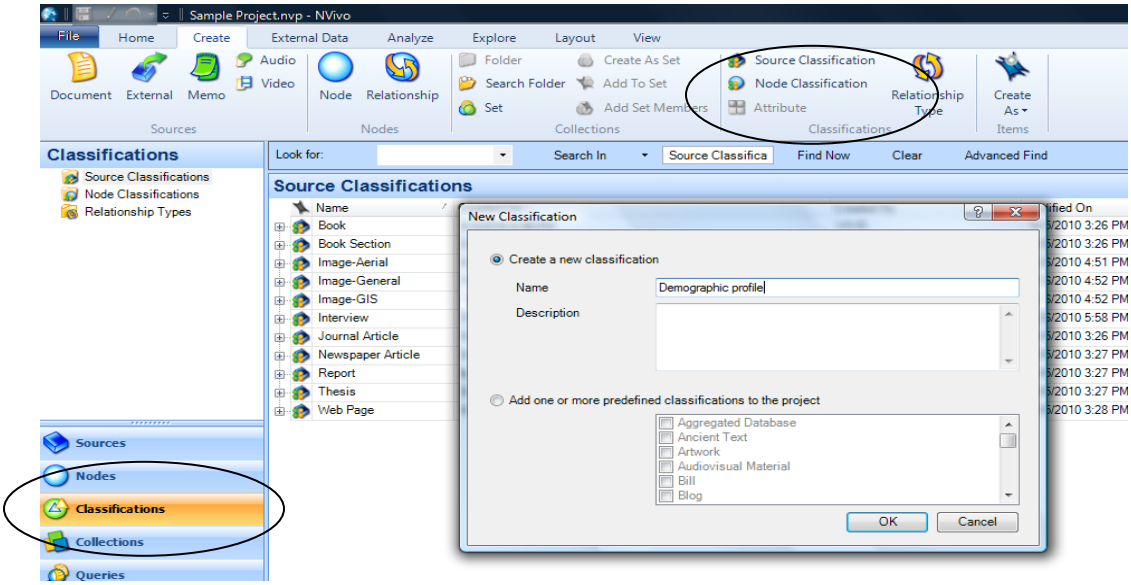
Classifications provide a way to record descriptive information about the sources, nodes and relationships in your project. While *Source* and *Node Classifications* behave in a similar way, they are used for different purposes. Source classifications store bibliographical information about your sources and you can import this information from reference management tools such as EndNote. NVivo also provides the predefined classifications *interview* and *focus group* to help you keep track of your sources. You can add these to your project or create your own source classifications. *Node classifications* provide demographic details about the people, places or other cases in your project. For example, you can classify a node as a *Person* and define attributes for age and occupation.



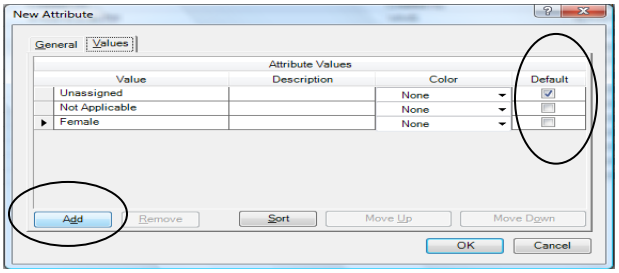
Attributes are characteristics that you associate with a document or node. Attributes enable you to compare cases based on some variables. For example, a document representing an interview with a doctor might have the following characteristics that are relevant to a project: female, 35-50 years old, and interview date. By linking attributes to documents, you can conduct searches that are limited to documents with specified characteristics. For more on the Search Tool in NVivo, see below.

Creating Attributes within NVivo

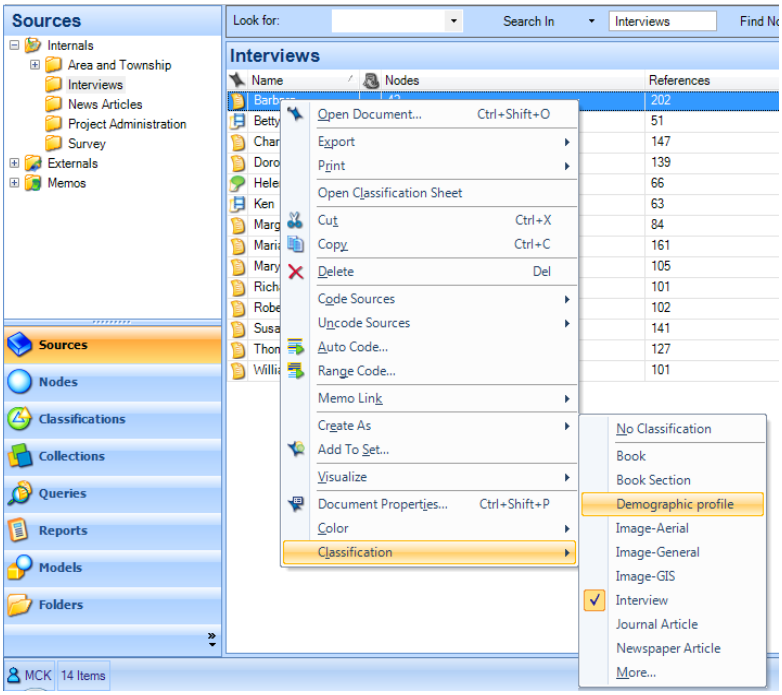
Creating attributes and linking them to documents or nodes is easy. To make a new attribute, click the **Classifications** button in the **Navigation View**. On the top menu, go to **Create** and click on **Source Classification** if you would like to create descriptions for a source or **Node Classification** to create descriptions for a code. Make sure that **Create a new classification** is selected, and then type in the name desired for the classification, such as "demographic profile." The classification is essentially a spreadsheet that allows you to record information about your sources.



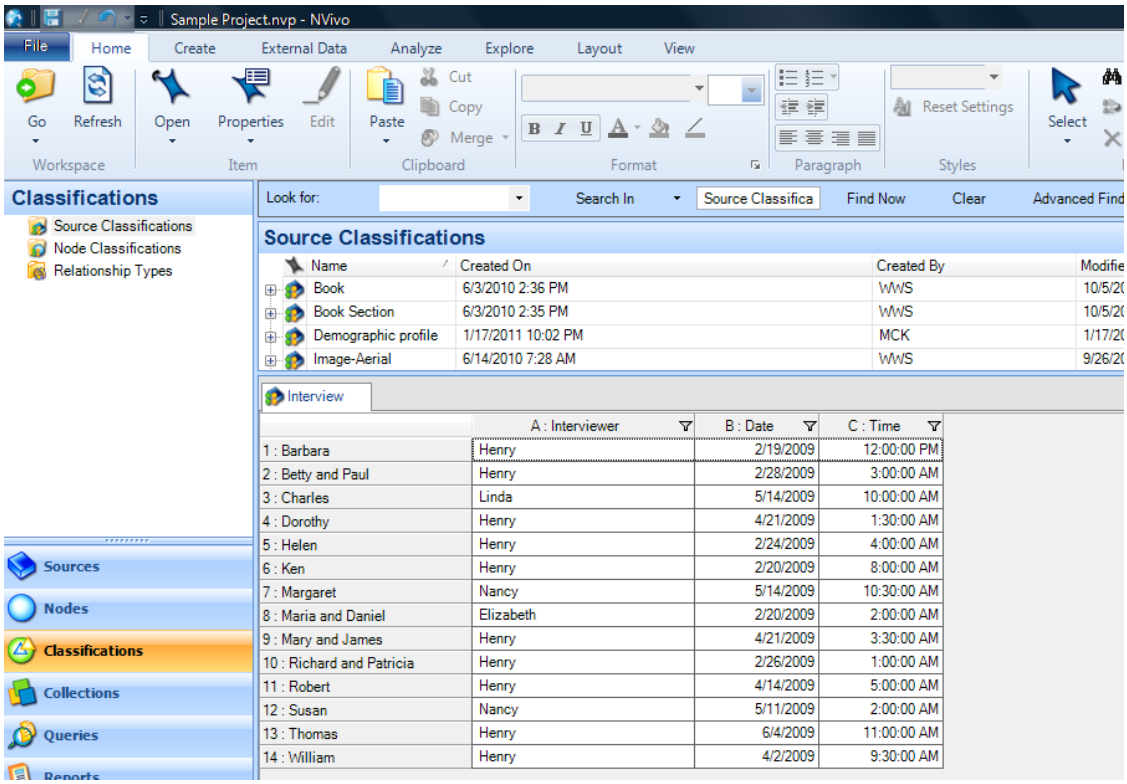
Once you have created the classification, you can select the classification, go to the top menu and click **Attribute**. You will be then led to a window that asks you to name the attribute (such as "gender"). You can click on the **Values** tab in the window to assign values to your new attribute. To do this, click the **Add** button, type a new value in the box and click **OK**, and then repeat as many times as necessary until all values are entered. You can click the **Default** check box to specify that new cases will be allocated this attribute value as a default. Once you are done, click **OK**.



You can see all the attributes contained within a classification by clicking on the expand button next to your classification. To add a source to the classification (for example, to add an interview so that you can record the gender of the interviewee), go to **Sources** in the **Navigation View**, right-click on the source that you want to add, scroll to **Classification** and select the classification to which you want to add the source.



To open the classification to begin assigning attribute values to your sources, go back to **Classifications** in the **Navigation View** and double-click on the classification. You can then assign attribute values to your sources using the drop-down menus in each cell of the classification worksheet.



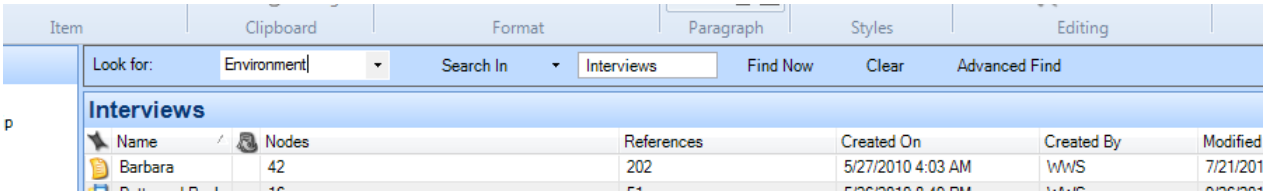
NVivo provides reports that enable you to check the progress of your project. You can obtain reports that summarize the attributes in a classification or the nodes that you have created. To do this, click **Reports** in the **Navigation View**, then go to the top menu, select **Explore** and click on **New Report**. Follow the **Report Wizard** to obtain your desired report.

Importing Attributes from a Spreadsheet

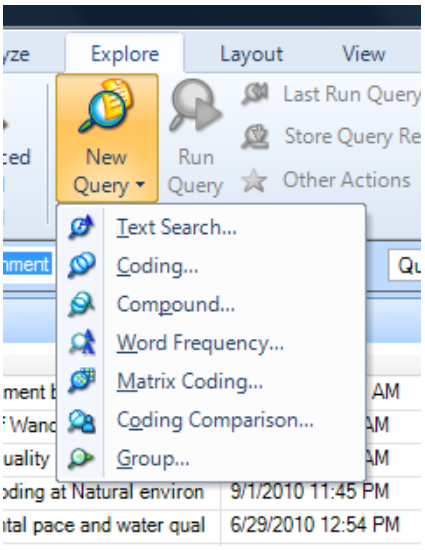
If you want to link several characteristics to the documents in your project, it may be more efficient to import the attribute data from an external table. This spreadsheet should be created in Excel (*.xls, .xlsx*) or as a tab separate text file (*.txt*). To import the spreadsheet, go to the top menu, select **External Data** and click on **Classification Sheets**. This will take you to the **Import Classification Sheets Wizard**. Follow the steps in the wizard to load your classification into your NVivo project.

Getting Results

NVivo provides a number of tools for finding and filtering your data in order to get results. One way is to use the **Find** function to locate text in a source. On the pane above the **List View**, type in the text you want to find in the **Look for** window on the left, specify where you want the search to take place in the **Search In** field, and click **Find Now**. You can also click on **Advanced Find** to filter project items based on selected criteria. An example is to find all the cases who are women, over 50, and retired.



Querying or searching your data is one of NVivo's most powerful and versatile functions to get results. You can create and save the following queries in NVivo:



- **Text Search Query**: lists all sources that contain specified text.
- **Coding Query**: gathers content based on how it was coded.
- **Compound Query**: combines text and coding queries.
- **Word Frequency Query**: list words and the number of times they occur in selected items.
- **Matrix Coding Query**: creates a matrix of nodes based on search criteria
- **Coding Comparison Query**: compares the coding of two researchers or two groups of researchers.
- **Group Query**: finds items how items are associated in a particular way to other items in your project.

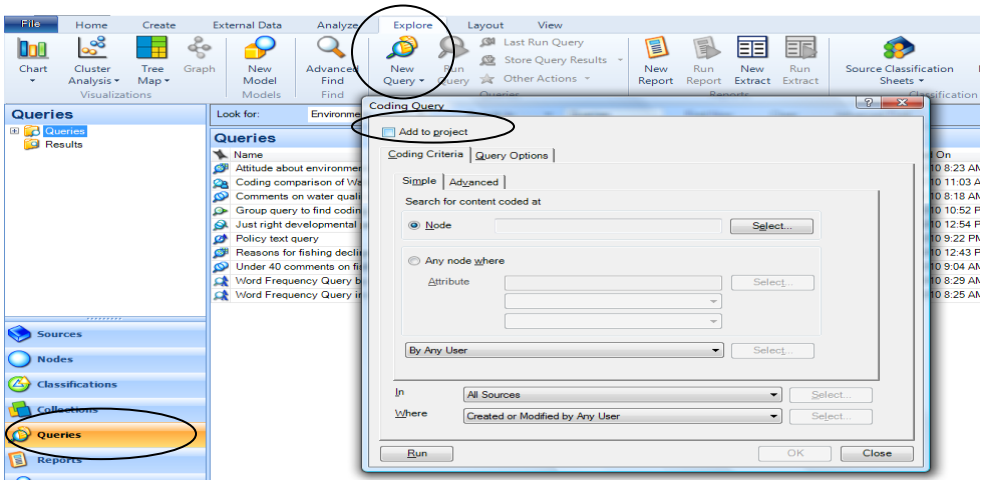
The section below will cover simple coding queries and the matrix coding query. For further detailed information about setting up and running each type of query, refer to the **Help** menu.

Coding Query

Coding queries enable you to sift through the project data to find instances based on coding. For example, you might want to find the code "trust" within all documents. You would like to view every instance where the code appears.

To carry out this search, click the **Queries** button in the **Navigation View**. On the top menu, select **Explore**, click **New Query**, and select **Coding**. You will then see the **Coding Query** dialog box. Click the **Coding Criteria** tab and define search in the **Simple** tab. Determine how the query results are stored in the **Query Options** tab.

If you want to save the query, click the **Add to Project** checkbox at the top of the dialog box. Enter a name and description in the **General** tab. Click **OK** to save the query set-up. Click **Run Query** on the top menu to obtain the coding results.



Matrix Query

Matrix coding queries enable you to compare pairs of items and display the results in a table or matrix. A new node is created for each cell in the matrix—you can open the node and explore all the material gathered there. For example, you could compare attitudes about the environment by the longevity of residents in the communities in your study.

Attitude about environment by long

	A : Longevity-Non-residents Down East	B : Longevity-1st generation Down East	C : Longevity-2 generations Down East	D : Longevity-3+ generations Down East
1 : Positive	1	1	1	1
2 : Mixed	1	1	0	1
3 : Negative	1	1	1	1

In this example,

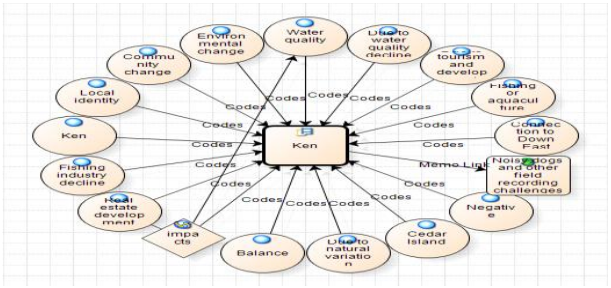
- Nodes relating to *attitudes about the environment* were selected for rows and the case attribute values for *longevity* were selected for columns.
- Cells display the number of coding references—there is 1 occurrence of coding at *mixed attitude* and *Longevity-Non-residents Down East*. Using the right-mouse button on the matrix, you can toggle to change the information displayed in cells (the number of sources is the default). To see everything *non-residents down east* said about *mixed attitudes*, double-click on the cell.

To carry out a matrix search, click the **Queries** button in the **Navigation View**. On the top menu, select **Explore**, click **New Query** and select **Matrix Coding**. You will see the **Matrix Coding Query** dialog box. Under the **Rows** tab, from the **Define More Rows – Selected Items** drop-down list, click the type of item you want to display in rows. Click the **Select** button to choose the required items and then click the **Add to List** button. Under the **Columns** tab, click the **Define More Columns – Selected Items** drop-down list and click the type you want displayed in the columns. Click the **Select** button to choose the required items and then click the **Add to List** button. Under the **Matrix** tab under **Collection Display Options**, select the way you want project item names to be displayed in the row and column headers. From the **In** drop-down list select the items you want to include in the scope of the search. Click the **Run** button to view.

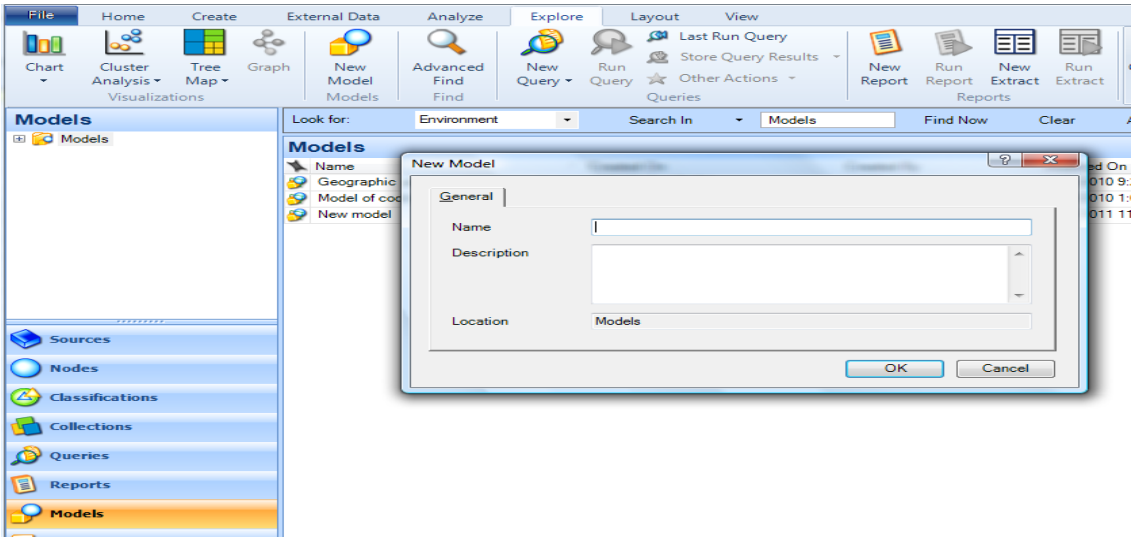
You can also do a *Boolean Search* and use Boolean operators to present results for a combination of search criteria. Click the **Matrix** tab and select a Boolean operator that determines how content is retrieved from rows and columns. You can choose the following operators for the pairs in a matrix coding query: AND, OR, NOT, NEAR CONTENT, PRECEDING CONTENT, SURROUNDING CONTENT.

Creating Models and Charts

You can create models and charts to visually present your data and display your results. For example, you might use a model to show the nodes attached to Ken, an interviewee:

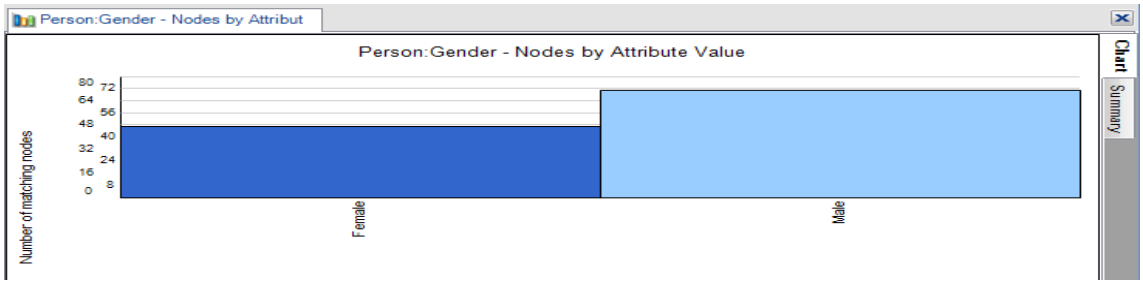


To create a model, click the **Models** button in the **Navigation View**. On the top menu, select **Explore** and click the **New Model** button. Enter a name and a description for your model and click **OK**. An empty model will be displayed in **Detail View**. To work with the model in a separate window, go to the top menu, select **View** and uncheck the **Docked** option.



To start building a model, be sure to click the blue **click to edit** link at the top of the **Detail View**. To add a shape to the model, click a shape in the **Shapes** panel at the top – the shape will show up in the **Detail View**. Double-click the shape to give it a name and description. To associate the shape with an item in your project, right-click the shape and select **Convert to Existing Project Item**.

To create a chart, go to the top menu, select **Explore,** click on **Charts** and select **Charts**. The **Chart Wizard** dialog box will be displayed. Select what you want to chart (coding, sources or nodes) and click **Next**. Select whether you want to chart the data by nodes (if charting sources) or attribute values, then click **Next**. Select the attribute in the **X-axis attribute** field, then click **Finish** to generate the chart. The chart will be displayed in **Detail View**. You can create a chart like this:



For More Information and Assistance

This section of the guide directs you to useful resources for learning NVivo and resolving any questions or problems that could arise as you become familiar with the software.

NVivo Tutorials

NVivo tutorials can be accessed both from the **Help** menu in the program or at the vender's web site: http://qsrinternational.com. We recommend that you complete at least one tutorial. Once you have done this, you should be well prepared to run your own project in NVivo.

NVivo Documentation and Books

Please see the document "Resources for Learning NVivo" on the SSDS website.

The Velma Denning Room (Green Library Bing Wing room 120F) has a collection of books and manuals about qualitative analysis and qualitative software. To view the current collection, you can either stop by or consult our website (http://ssds.stanford.edu) for book lists organized by title, subject, and call number. The collection is non-circulating, but additional copies of some books and manuals may be available in Green Library's course reserves system.

Consulting

If you have questions about using NVivo, please contact the software consultants at Social Science Data and Software. Our website is http://ssds.stanford.edu. The software consultants are available during the academic year on a walk-in basis. Please see our website for our current walk-in hours.

Note: This document is based on NVivo 9.