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Introduction to NVivo 12 Pro for Windows – Part 2

This session looks at how to organise project materials together according to specific themes and topics by coding into nodes; how to use mind maps to visualise the layout of nodes; and at how to conduct simple searches. It uses the sample project *Environmental Change Down East*.

1   Nodes and Coding

Materials on a particular topic, theme, concept, etc. can be viewed together in one place (and hence analysed) in NVivo by storing them in what is called a **node**. You can create any nodes you like, but some suggestions for nodes for a literature review are as follows:

- History
- Definitions
- Empirical studies
- Themes
- Methodology
- Data collection
- Limitations of study
- Statistics
- Good quotes
- Justification
- Gaps or contradictions

Furthermore, you can allocate materials to nodes through the process of **coding**. Again, while you can code your material however you see fit, some suggestions for coding are as follows:

- Articles that contain a certain methodology or are by a certain author
- Use sub nodes if necessary e.g. *Qualitative research* and *Mixed method research* under the node for *Methodology*
- Using selected texts of articles to identify main concepts or similar concepts to be analysed later on
- As your literature review evolves you may want to merge, move or rename your nodes
- Use coding stripes
- Coding can be applied to Memos

This section looks at how you can create, manage and code material to nodes in the sample project.

1.1 Creating Nodes and Coding Material

There are a few different ways you can create new nodes, depending on whether you set up all your nodes first and then code, or whether you create new nodes as you code (or you may wish to do a combination of both).

1.1.1 Creating a node before you begin

To create a node before you begin coding, for example a *Development* node, do the following:

1. Click 'Nodes' in the Navigation View (in the 'Codes' group)
2. Right click in the white space in the List View and select 'New Node…'
3. Type in the name of the node (e.g. *Development*), and add a Description and Nickname if you wish. You can also colour code the node, for example to identify different members of the team.
4. Click 'OK'

(Alternatively, you can do this by selecting the 'Create' tab on the ribbon at the top of the screen, and then selecting the 'Node' option in the 'Codes' group).

1.1.2 Creating a node as you code

As an example of creating a node as you code, open the *Maria and Daniel* interview file (in the *Interviews* sub-folder of *Files*) and scroll down to the 'Q.4. Community and environmental change' heading, then continue

scrolling to Elizabeth's second question (on fisheries) and Daniel's response. To code this response to a new node, for example a *Fishing Industry* node, do the following:
1. Highlight the text
2. Right click and select 'Code…'
3. Click on the 'New Node' button at the bottom of the dialog box that appears
4. Type in the name of the new node (e.g. *Fishing Industry*)
5. Click 'OK'

You can then check that the text you selected has been coded to the new node by clicking on 'Nodes' in the Navigation View and double clicking on the *Fishing Industry* node.

1.1.3 Coding material to existing nodes
You would have observed that you can also use this method to code material to existing nodes; another way of doing this is simply by dragging and dropping the text to the required node. For example, you can code text from the *Maria and Daniel* file to the *Development* node by doing the following:
1. Open the file (e.g. the *Maria and Daniel* file)
2. Highlight the part of the text you wish to code (e.g. a portion relating to development)
3. Click 'Nodes' in the Navigation View
4. Hold down the left mouse button and drag the highlighted text to the node you wish to code to (e.g. the *Development* node)

Once you have done this, repeat the process for the *Margaret* file (also in the *Interviews* sub-folder of *Files*).

Note that you can also code material from existing nodes (as opposed to material from files) to new or existing nodes using the methods described above; this is known as 'coding on'.

1.2 Exploring Nodes
You can view all the material you have coded to nodes by opening the various nodes in the Details View. For example, if you open the *Development* node you will notice that there are three tabs on the right hand side; Summary, Reference and Text. These tabs are as follows:
- **Reference** tab – shows the content that has been coded from each file. This is the default display tab.
- **Summary** tab - summarises the files that have been coded to the node
- **Text** tab - displays content that has been coded to the node for each text file individually.

Note that if there were any other types of files coded to the node, such as picture files, then the content for each such file would be displayed in an appropriate tab (e.g. a **Picture** tab).

1.3 Uncoding Material
The easiest way to uncode (remove) material you have previously coded to a node is to highlight the text you wish to uncode (either in the file or in the node), then right click and select either:
- 'Uncode…' to select from the dialog box that appears, the node(s) you wish to uncode from;
- 'Uncode from Recent Nodes' to select from the list of recent nodes displayed, the nodes you wish to uncode from; or (if you are in the node)
- 'Uncode from This Node' to uncode from the node you are in.

Alternatively, if you simply wish to make a change to material that has been coded, such as a correction to spelling, make the change in the file itself. Changes that you make to any coded material in a file will automatically be updated in all the nodes where it appears.

1.4 Coding Stripes and Highlighting
Coding stripes are coloured stripes that you can choose to display in the Details View of a file (or a node if you have coded on), indicating what has been coded where. Coding stripes also enable you to see how much of a file has been coded.

To display coding stripes, for example for the *Maria and Daniel* file, do the following:
- Open the file (or node) in the Details View
- Select the file-specific tab that will have appeared on the ribbon at the top of the screen (i.e. the 'Document' tab in this case; or the 'PDF' tab for a PDF file, etc.)
- Select the 'Coding Stripes' option in the 'View' group
- Select the type of coding stripes you would like, for example 'Recent Coding'
- If you have colour coded your nodes, you can display these by clicking on 'Coding Stripes' and then on 'Item Colours'

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For this particular example, you should observe that the coding stripes show which sections of the *Maria and Daniel* file have been coded to the *Development*, *Fishing Industry* and other recently used nodes. Highlighting works in a similar way, in that it allows you to see how much of a file (or node) has been coded. To highlight a file or node simply select the 'Highlight' option in the 'View' group on the ribbon (next to 'Coding Stripes'), and choose whether you would like to highlight all coding or selected items only.

1.5 Creating Sub-Nodes and Moving Nodes

If at any time you decide you want to make changes to your nodes, for example moving, merging and/or renaming them, you can do so with relative ease (although it might be worth saving a copy of your original project first just in case). The procedures for making these changes are described in this and the following sections.

To create sub-nodes of parent nodes, simply RHC on the parent node in the List View and selecting 'New Node…'. Alternatively, if you want to rearrange your nodes and make an existing node a sub-node of another existing node you can do that too. As an example, create a new node *Zoning*. To then move this node to sit as a sub-node under the *Development* node, do the following:

1. Right click on the node you want to make the sub-node (e.g. *Zoning*)
2. Select 'Cut'
3. Right click on the node you want to make the parent node (e.g. *Development*)
4. Select 'Paste'

The *Zoning* node then becomes a sub-node of the *Development* node:

1.6 Merging Nodes

You also might find that you eventually want to merge two or more nodes that you originally created as separate nodes (with similar themes).

As an example, create a new node *Sustainable Fishing*, then open the *Margaret* file and code the portion of text pertaining to sustainable fishing (as part of Margaret's response to Nancy's third question on the future of the fishing industry under the 'Q.2. Connection to Down East natural environment' heading) to it.

To then merge this node with the *Fishing Industry* node, do the following:

1. Right click on the node you wish to merge (e.g. the *Sustainable Fishing* node)
2. Select 'Cut'
3. Right click on the node you wish to merge into (e.g. the *Fishing Industry* node)
4. Select 'Merge into Selected Node…'
5. Click 'OK'

The *Sustainable Fishing* node is then merged with the *Fishing Industry* node, which should now have two references coded to it (the original *Fishing Industry* reference along with the *Sustainable Fishing* reference just coded):

1.7 Renaming Nodes

To rename a node, for example the *Fishing Industry* node to simply *Fishing*, do the following:

1. Right click on the node you wish to rename (e.g. the *Fishing Industry* node)
2. Select 'Node Properties…'
3. Enter a new name for the node (e.g. *Fishing*)
4. Click 'OK'

Alternatively, you can click once on the node to select it, then click again to make the name editable.

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2   Creating Maps

You can create a few different kinds of maps in NVivo to visualise items in your project and the relationships between them- in particular for the nodes. This section describes how to create two common maps.

2.1   Creating a Mind Map

A mind map is a brainstorming tool that starts with a central topic or main idea. Ideas that relate to the central topic are represented by an individual shape and connected with a line to the main idea; these ideas can be connected at the same level or in a hierarchy. An idea that is not connected to any other ideas can be added as a floating idea in the mind map. Mind maps are useful for planning what nodes you will include in your project, and how they will all fit together.

To create a new mind map click on the 'Explore' tab and select 'Mind Map'. Enter a name e.g. 'QR Mind Map'; the new map should open in the Details View and will also appear in the Maps folder (in the 'Maps' group) in the List View. Enter the text of your topic e.g. Estuarine shoreline changes. Right hand click and select Insert:
- Child Idea and add the text Development (A child idea is a subset of the selected idea)
- Sibling Idea and add the text Fishing
- Child Idea and add the text Recreational fishing or you can RHC on the Fishing bubble and select the Insert Child Idea (A sibling idea is on the same level as the selected idea)
- Either Child Idea (from Fishing bubble) or Sibling Idea (from Recreational Fishing) and add the text Commercial fishing

RHC outside the bubbles and select Insert Floating Idea and add the text Community views (Floating ideas are great to keep in mind ideas for exploring later on).
Use the Mind Map tools to click on Fill, Border Colour and Border Width if necessary.
You have options to select a layout in the ribbon for the Mind Map.
To export your mind map, RHC in the mind map area and choose Export Map > Location > Save
Bubbles can be created as a nodes. Click the parent bubble > *Create as Nodes or Cases* on the ribbon > OK. The Mind map will be converted into the themed node hierarchy. (Alternately select the mind map and then click on *Create as Nodes or Cases.*)

2.2   Creating a Concept Map

A concept map is a free-form visualization made up of different shapes and connectors. It uses shapes to represent concepts (nodes) and connections can be made to visualise your thoughts. Concept maps are useful for visualising the nodes you already have in your project, and the relationships between them.

To create a new concept map click on the 'Explore' tab and select 'Concept Map'. Enter a name e.g. 'QR Concept Map'; the new map should open in the Details View and will also appear in the Maps folder (in the 'Maps' group) in the List View. In the Detail view drag the shapes you want to add from the window pane on the left. Double click on the shapes to enter labels. To connect shapes click on 'Connector' on the Concept Map tab on the ribbon. Click and drag from one shape to another in the direction you want. If you want to label the connection, double click on the connector, and a text box will appear. To get your normal cursor back, click on 'Pointer' on the ribbon. To add a shape which is a link to a Project Item, click on the 'Add Project Item' tab on the ribbon. Tick all the items you want to add and click OK. Alternately you can click and drag project items from the List View to the map. Note that items dragged as a group cannot be ungrouped in the map. To delete a shape or a connector, select it and click 'Delete' on your keyboard.

3   Searching

You can use **queries** to search your material for specific words or phrases, to search for frequently occurring words or to search for material that has been coded to combinations of nodes, or to nodes for particular cases or classification attributes. This section looks at some examples of queries, including queries utilising file and case classifications.

3.1   Running Text Search Queries

A text search query is used to search project items and folders (e.g. all files, files in a specific folder, material coded to nodes, etc.) for specific words and phrases.

To run a simple text search query, for example to search for the word *erosion*, do the following:
1. Click 'Queries' in the Navigation View (in the 'Search' group)
2. Right click in the white space in the List View and select 'New Query', then 'Text Search'

3. Choose where you would like to search; the default is 'Files & Externals', but if you would like to search specific items or folders then click on the appropriate button and make your selections in the dialog box that appears
4. Enter the text to search for in the 'Search for' box (e.g. *erosion*); you can enter multiple words and/or can use special characters and operators to assist with your search using the 'Special' button if required
5. You can alter the 'Spread to' from the default 'None' to a different context if you would prefer to see more, or less, of the context of the word(s) in the resulting query
6. Choose how precise you wish to be with words in your search using the 'Find' slider on the right (e.g. choose to search for Exact matches, including stemmed words, including synonyms, etc.)
7. Select 'Run Query'
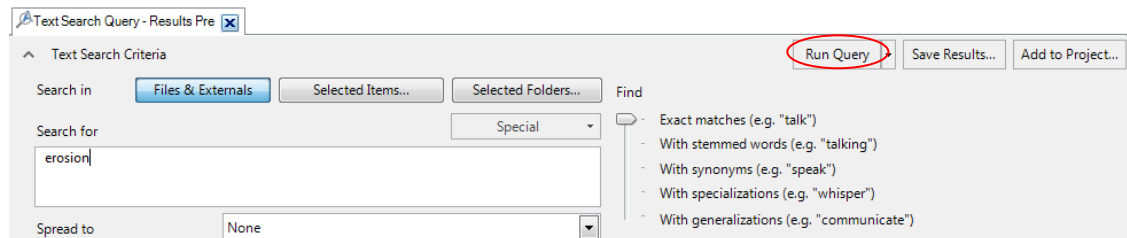
(Alternatively, you can run a text search query by selecting the 'Explore' tab on the ribbon at the top of the screen, and selecting the 'Text Search' option in the 'Query' group.)

The results of the text search query will then be displayed underneath in a series of tabs:
- the **Summary** tab is the default display tab, showing all files that contain the search word(s), and the number of occurrences;
- the **Reference** tab displays a snippet of the context of each instance of the search word, sorted by file (note that to change the context to view more, or less, you can highlight and then RHC on the selected instance(s), then select 'Coding Context' and change it; alternatively, you can always run the query again with a different 'Spread to' option if preferred, and/or you can click on the file location link to see the results highlighted in the original document);
- the file-specific tabs (e.g. **PDF**, **Dataset**) do the same, but each file is displayed on a separate page; and
- the **Word Tree** tab displays the results of the search in a word tree, with the search term in the middle and the preceding and subsequent text on either side (listed alphabetically). Double clicking on any part of a sentence will open it in the file where it appears.

If you want to keep a copy of your text search query, you can choose to save it either as a new node (or merged with an existing node), or a new query, by selecting the 'Save Results…' or 'Add to Project' buttons respectively. For example to save the results of your most recent search as a new *Erosion* node, do the following:
1. Select 'Save Results…'
2. Choose whether to 'Create Results as New Code or Case' or 'Merge Results into Existing Code or Case' (e.g. choose the former)
3. Choose a Location; the default is to store the results node in the *Query Results* folder, but you can choose to store it in the *Nodes* or *Cases* folders instead (keep *Query Results* as the location for this example)
4. Give a name to the new node (e.g. *Erosion*), and a description if required
5. Click 'OK'

You can also filter a text search query according to a particular file classification type or types, or according to a particular attribute of a file classification. For example to conduct a text search query that only searches for the word *erosion* in 'Reference' file classifications which have the *Year* attribute set to 2010, update your current search as follows:
1. For the 'Search in' option, this time choose 'Selected Items…'
2. Select the 'Filter' button (bottom left hand corner)
3. Tick 'Classified items where' (bottom option)
4. Click 'Select…', choose the file classification and then attribute that you want to filter your search by (i.e. 'Reference' and *Year*), then select 'OK'
5. Choose the filter criteria- i.e. 'equals value', 'does not equal value', '> value', etc. (choose 'equals value')
6. Choose the value of the attribute you want to filter your search by (i.e. '2010')

7. Select 'Find Now'
8. When you look through the project items in the 'Select Project Items' dialog box now (by clicking on the name of the folder in the list on the left hand side, clicking on the '+' signs to open sub-folders and then clicking on them as required to view the contents), everything except items that adhere to the filter will be greyed out. So just select the applicable non-greyed out item, or just tick the 'Files' box and all the non-greyed out files will be ticked (do this now).
9. Select 'OK'
10. Adjust the other search options as required (as detailed previously)
11. Select 'Run Query'

The search results will only include occurrences of the word *erosion* in files of the type 'Reference' from the 'Year' 2010; you can save these results as detailed above.

3.2 Running Word Frequency Queries
A word frequency query is used to determine the most frequently occurring words in various project items and folders, and to display them in different ways.

To run a word frequency query for the *Interviews* files, for example, do the following:
1. Click 'Queries' in the Navigation View
2. Right click in the white space in the List View and select 'New Query', then 'Word Frequency'
3. Choose where you would like to search; the default is 'Files & Externals', but if you would like to search specific items or folders then click on the appropriate button and make your selections in the dialog box that appears (e.g. click on the 'Selected Folders…' button and select the *Interviews* sub-folder in the *Files* folder, then click 'OK', to run the query for the *Interviews* files only). Note you can also filter the query as detailed for text search queries.
4. Enter the number of words you would like displayed (e.g. 20), and the minimum length (keep as 3)
5. Choose how precise you wish to be with words in your search using the 'Grouping' slider on the right (e.g. choose to search for Exact matches, to group stemmed words, to group synonyms, etc.)
6. Select 'Run Query'
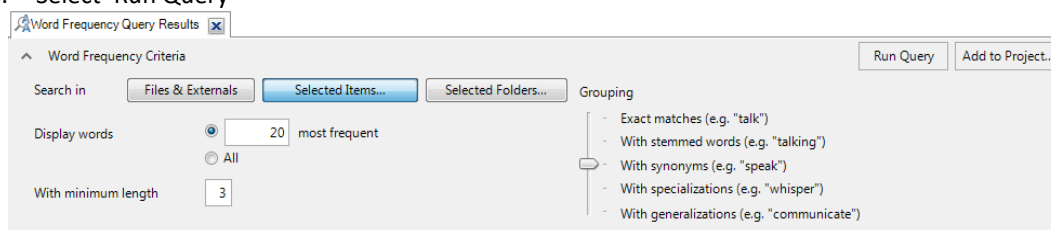
(Alternatively, you can run a word frequency query by selecting the 'Explore' tab on the ribbon at the top of the screen, and selecting the 'Word Frequency' option in the 'Query' group.)

The results of the word frequency query will then be displayed underneath in a series of tabs, two of which are:
- the **Summary** tab (the default display tab), which shows the most frequently used words and the number of occurrences; and
- the **Word Cloud** tab, which displays the most frequently occurring words in a word cloud.

If you want to keep a copy of your word frequency query you can choose to save the results in the *Queries* folder by selecting the 'Add to Project…' button and naming the query as appropriate.

3.3 Running Coding Queries
Coding queries allow you to search content that has been coded, either to node(s) or case(s), according to specific combinations of nodes, cases or attribute values. For example, if you are interested in knowing what males think about infrastructure you would do the following:
1. Click 'Queries' in the Navigation View
2. Right click in the white space in the List View and select 'New Query', then 'Coding'
3. Choose where you would like to search; the default is 'Files & Externals', but if you would like to search specific items or folders then click on the appropriate button and make your selections in the dialog box that appears. Note you can also filter the query as detailed for text search queries.

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4. Choose either 'All' or 'Any' for 'of the following are true', depending if you want to search for material that meets ALL the conditions you are about to specify, or just ANY (i.e. to search for material that has been coded to the *Infrastructure* node and has 'Male' as the value for the attribute *Gender*, choose 'All')
5. Next to 'Coded at' 'All Selected Codes or Cases', click on the button with the ellipsis and tick the applicable node(s) (i.e. *Infrastructure*), then click 'OK'
6. Click on the '+' sign at the end of that row, to add a new condition
7. This time, change the value in the second box to 'Any Case Where', click on the button with the ellipsis, click on the '+' sign next to the case classification you are interested in (i.e. 'Person') to display the attributes, choose the appropriate attribute (i.e. *Gender*) and click 'OK'
8. Now choose which values of this attribute you want to use for the condition (i.e. keep the first new box as 'equals value', and change the second new box to 'Male')

Coded at	All Selected Codes or Cases	...	(1) Infrastructure		
Coded at	Any Case Where	...	Person:Gender	equals value	Male

9. Select 'Run Query'

The results of the coding query will then be displayed underneath in a series of tabs; if you want to keep a copy of your coding query you can do so by choosing 'Save Results…' or 'Add to Project…'

3.4 Running Matrix Coding Queries

You can use matrix coding queries to make comparisons and look for patterns in your data. For example, you can look at how much and what content has been coded at intersections of different nodes, and at how much and what content has been coded for different cases for different nodes. For example, you can compare positive and negative attitudes to four different issues by finding which content has been coded at the intersection of different nodes, as follows:

1. Click 'Queries' in the Navigation View (in the 'Search' group)
2. Right click in the white space in the List View and select 'New Query', then 'Matrix Coding'
3. Choose where you would like to search; the default is 'Files & Externals', but if you would like to search specific items or folders then click on the appropriate button and make your selections in the dialog box that appears. Note you can also filter the query as detailed for text search queries.
4. Choose what you would like displayed in the Rows of the matrix by clicking on the '+' sign underneath the 'Rows' box. For example click on '+' and choose 'Select Items…', then click on 'Nodes' to view the list of available nodes and tick *Balance*, *Community change*, *Economy* and *Infrastructure* (for example) and click 'OK'. You will then see a list of nodes that will display as rows in the matrix; if there are any you decide you don't want after all then simply select and click the '-' sign.
5. Now click on the '+' sign underneath the 'Columns' box to choose what you would like in the columns; for example choose 'Select Items…' again then click on 'Nodes' to view the list of available nodes, click on the plus sign next to the *Attitude* node, tick *Negative* and *Positive* and click 'OK'. Again you will see a list of nodes that will display in the matrix, this time in the columns; if there are any you decide you don't want after all then simply select and click the '-' sign.
6. When you are happy with the selected options choose 'Run Query'.

Once you have your matrix, to view the codings for each intersection (cell in the matrix) simply double click on it. You can also choose to colour code the matrix according to which intersections have the most and least coding by simply selecting the appropriate cell shading option from the ribbon, and can save the matrix by choosing 'Save Results…' or 'Add to Project…'

3.5 Running Crosstab Queries

Very similar to a matrix is a crosstab query; you can use this to create a table showing what has been coded to different nodes for different attributes of the file and case classifications in your project, or for different cases. For example, you can compare how often males and females responded to four different issues as follows:

1. Click 'Queries' in the Navigation View (in the 'Search' group)
2. Right click in the white space in the List View and select 'New Query', then 'Crosstab'
7. Choose where you would like to search; the default is 'Files & Externals', but if you would like to search specific items or folders then click on the appropriate button and make your selections in the dialog box that appears. Note you can also filter the query as detailed for text search queries.
3. Keep 'Crosstab codes against' as 'Attributes' (you would change it to 'Cases' if you want to compare for different cases instead of attributes).
4. Click on the '+' sign underneath the 'Codes' box to choose what you would like in the rows of the table; tick *Balance*, *Community change*, *Economy* and *Infrastructure* (for example) and click 'OK'.

5. Keep the classification as 'Person' and change 'Attribute1' to 'Gender'
6. When you are happy with the selected options choose 'Run Query'.

Once you have your table, to view the codings for each intersection (cell in the table) simply double click on it. You can also choose to colour code the table according to which intersections have the most and least coding by simply selecting the appropriate cell shading option from the ribbon, and can save the table by choosing 'Save Results…' or 'Add to Project…'

4   Creating a Chart

Another tool you may like to make use of in order to make comparisons and look for patterns in your data is a chart. For example, you could create a chart to show how many of each reference type you have, using the 'Reference Type' attribute of the' Reference' file classification. You can do this as follows:

- Go to the 'Explore' tab and choose 'Chart'
- Choose 'Charts…'
- Select 'Files' and click 'Next'
- Choose 'Files by attribute for an attribute' (to just work with one attribute), then choose 'Next' again
- Click on 'Select…' to choose the attribute to display on the x-axis (i.e. the *Reference Type* attribute of the 'Reference' file classification), then click 'OK'
- Change the 'X-axis attribute' to be 'All attribute values except 'Unassigned', 'Not Applicable' (to not display these values in the graph if preferred)
- Select 'Finish' and your graph will display

You could also try creating a chart to compare the 'Education Level' of the 'Person' case classification for material that has been coded to the 'Positive' sub-node of 'Attitude'. To do this go to 'Charts' again, and this time:

- Select 'Coding' and click 'Next'
- Choose 'Coding by case attribute value for a code' and click 'Next'
- For 'Node' choose 'Select…', then choose the 'Positive' sub-node of 'Attitude' and select 'OK'
- For 'X-axis attribute' choose 'Select…', then choose the *Education Level* attribute of the 'Person' case classification and click 'OK'
- Change the 'X-axis attribute' to be 'All attribute values except 'Unassigned', 'Not Applicable'
- Change 'Y-axis' to 'Number of coding references'
- Select 'Finish' and your graph will display

You can always edit your charts once created using the options available in the 'Chart' tab on the ribbon, and you can export by right clicking on the chart and choosing 'Export Chart'.