



Release Notes for SynCaps V3

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1 New Features

SynCaps V3 includes a number of new features. These are described briefly below and in more detail in the following sections.

- ▶ **Full install/uninstall:** Unlike earlier versions of SynCaps, V3 includes standard Windows install and uninstall features. This means that administrator privileges are required only for installation, not for running the actual program.
- ▶ **Microsoft-Office-style ribbon interface:** SynCaps now provides a user interface consistent with Microsoft Office 2007 and later. This provides greater visibility of the available tools and features.
- ▶ **Additional processing options:** There are new processing options to cover nested groups (so that you can choose to ignore nesting if it is present in your data) and to anonymize participants in the participant dendrogram. An option is also provided to set the maximum length of any label (item or group names) in the charts.
- ▶ **Nested groups:** V3 supports up to nine levels of nested groups. The number of levels between nested groups is used in calculating a weight in the cluster analysis (the smaller the difference, the greater the weight), plus a new Subgroups x Groups chart is included to show how groups were nested at each level.
- ▶ **Participant analysis and filtering:** A participant dendrogram is included in the basic analysis workbook. This shows the similarity between participants in how they sorted the item cards. It is also possible to filter participants to exclude those having low similarity to other participants and to perform an analysis to determine any significant participant clusters. The filtered results can be exported as separate data files.

1.1 Full Install/Uninstall

SynCaps V3 must be installed by an Administrator but does not require admin privileges to run once installed (as earlier versions did). The install process also includes user guides, sample files and templates in a folder that can be found in My Documents\SynCapsV3. To remove SynCaps V3 visit the Windows Control Panel (Programs and Features in more recent versions of Windows).

SynCaps V3 is installed for all users. The license key for the machine will need to be entered the first time the program is run under each login account (if more than one is used).

The documentation, sample files and templates folders are created for the installation login. You may want to copy the parent SynCapsV3 folder (under My Documents) to a shared location.

1.2 Microsoft-Office-Style Ribbon Interface

The ribbon interface consists of three tabs – Home, Charts and View (the Charts tab only appears once a document is open). It is possible to hide the ribbons, either by using Full Screen mode (Ⓜ in the screen shot below) which can also be toggled through the keyboard using Shift+Alt+Enter or by collapsing them (see Ⓜ, below).

Most of the interface is self-explanatory, but some features appear under the help icon at the right-hand end of the ribbon: license, tip of the day and the about box

(the help icon is marked **C**). There are also keyboard shortcuts for these functions – Ctrl+L, Ctrl+T and F1, respectively.

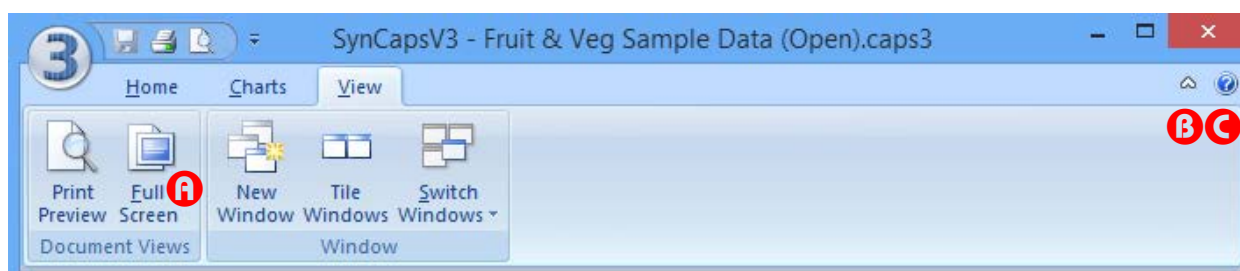


Figure 1, SynCaps V3 Ribbon Interface

1.3 Additional Processing Options

The new and changed options are labelled in the screenshot below:

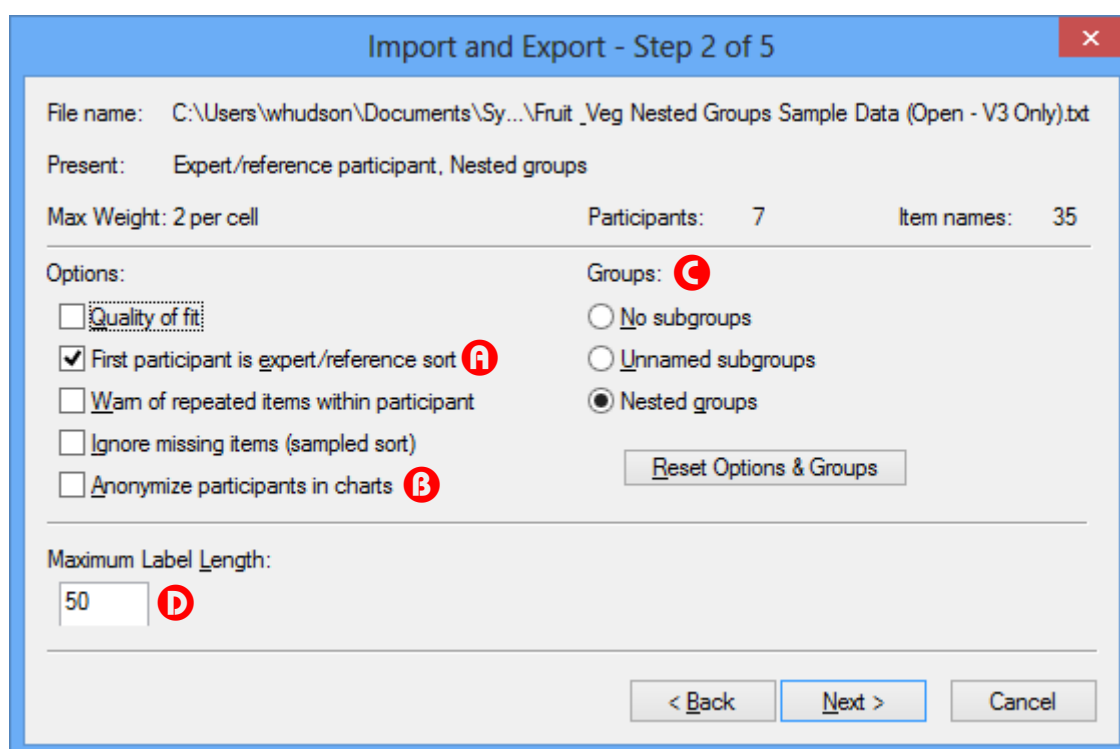


Figure 2, Import and Export Options

- A) **First participant is expert/reference sort.** The 'expert' sort is now also described as a 'reference' sort although the basic principle of being able to compare participant sort results to a reference sort remains the same. Also in V3, if you start the first participant data record with an 'R' (instead of a 'P'), this option will be automatically selected. You can unselect it if you wish.
- B) **Anonymize participants in charts.** SynCaps V3 chart workbooks now include a participant dendrogram (as long as there is more than one participant). If you would like to be able to share the dendrogram with customers or colleagues and do not want the participant identifiers to be visible, select this option. The participants will be labelled P1, P2, P3 and so on. The original participant identifiers appear in the correct order in the participant spreadsheet file (ending '-participants.csv').

- C) **Groups.** This option is initially set according to the contents of your data file. However, you may choose to change this before processing. If unnamed or nested subgroups are not present in your data file, the only benefit of selecting one of these options would be to change the cell weighting (shown as 'Max Weight' in the top-left corner). This would allow comparison of results with sorted data that did make use of unnamed or nested subgroups. See a more detailed discussion of nested groups in section 1.4 below.
- D) **Maximum Label Length.** This figure is the maximum length of items and groups that will be displayed in charts. It has no effect on the various spreadsheet files that are created. The default is 50, which should be adequate for most purposes.

1.4 Nested Groups

SynCapsV2 supported unnamed subgroups. These allowed participants to sub-divide groups using a 'sub-group' card (which appear as a record containing only an 'S' in the data file). Subgroups can be used to vary the weighting applied in analysis: items appearing the same sub-group are weighted '2' while items appearing in the same group but different subgroups are weighted '1'. (This approach was adopted from IBM's EZSort.)

SynCaps V3 still supports unnamed subgroups but also uses a similar approach for nested groups. Items that appear together in the same group are weighted '2'. Those that appear in the same group but at different group levels are weighted according to the distance between levels. The formula is:

$$W = 2(0.5^{dG})$$

Where W is the resulting weight and dG is the distance between group levels. The values produced by this formula are 2, 1, 0.5, 0.25 (for dG values of 0, 1, 2, 3) and so on. Items in groups that have no common parent are always weighted '0'.

The above approach means that nested groups and subgroups results can be compared although the approaches cannot be mixed within a data file.

If nested groups are used, the Subgroups x Groups chart will be populated with a matrix of group names used at each level by the subgroups that appear under them. Each cell shows what percentage of participants used that particular nesting.

Note that the Items x Groups chart shows all groups regardless of their levels. So 'Apples & Pears' may have been used at level 1 by some participants, but at levels 2 or 2 by others. This will not be obvious from the Items x Groups chart but will be clearly shown in Subgroups x Groups. Last, but not least, the Items x Items chart reflects the weighting used in the item proximity matrix and the subsequent cluster analysis.

The group level is added to the standard group data record as an 'L' immediately followed by a single digit which may be 1-9. So an open (participant-supplied) group 'Root Vegetables' under 'Vegetables' would appear as

```
GL1Vegetables
GL2Root Vegetables
items...
```

See the 'Fruit & Veg Nested Groups Sample Data (Open - V3 Only).txt' sample data file for further examples.

1.5 Participant Analysis and Filtering

Participant analysis and filtering provides several new features:

- ▶ **Participant dendrogram:** A participant proximity matrix is generated based on the similarity of participant card sorts. Two participants who sorted the cards into exactly the same groups would have a similarity of 100% (note that group names are ignored). The similarity is calculated by determining how many cards would have to be moved to make two participants equivalent. This is expressed as a percentage of the total number of item cards. The participant dendrogram shows the results of a hierarchical cluster analysis on the resulting proximity matrix. Note that the dendrogram normally shows the participant identifiers, but these can be replaced with participant numbers by using the 'Anonymize participants in charts' feature described in section 1.2 above.
- ▶ **Participant similarity filters:** The similarity filters exclude participants whose maximum similarity with others is below a selected minimum. For example, selecting 80% in the dialog shown below reduces the participant total from 27 to 22. The 22 filtered participants will all have a similarity of at least 80% with each other:

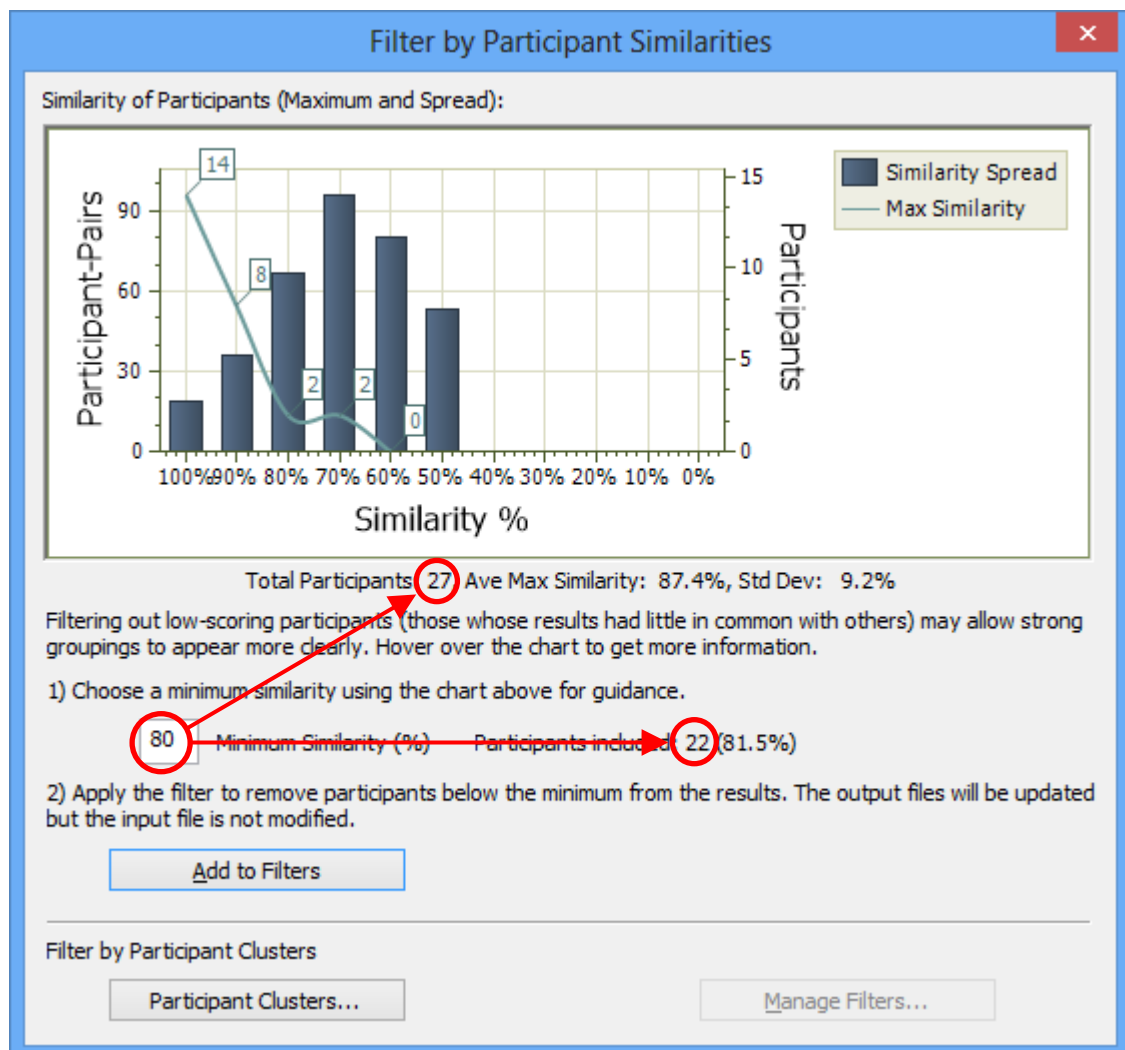


Figure 3, Participant Similarity Dialog

- ▶ **Participant clusters:** The participant cluster analysis tries to find clusters of participants who performed their card sorts in similar ways. The initial chart shown in the dialog below displays the potential multiple-cluster solutions found. Note that these clusters may not be significant. In fact, participants with low similarity frequently show a large number of potential clusters initially. The 'Calculate No of Clusters' process will determine the number of significant clusters, if any.

The full process includes three steps:

- 1) Choose an existing similarity filter (optional – the default is unfiltered). If you've already created one or more similarity filters, these will be listed in the drop-down. Bear in mind that for small numbers of participants (say fewer than 30), similarity filters may restrict the number of clusters found.
- 2) Calculate or select the number of clusters. Automatic calculation is recommended but can take several minutes for large data sets (a maximum time estimate is provided but this is often pessimistic). The figure that is reported here will be the number of statistically-significant clusters found (see Figure 5.)
- 3) A message is displayed at the completion of step 2 which asks whether you want to add the clusters found to your filter list. If you select 'No' but change your mind, you may add them later by clicking 'Add to Filters'.

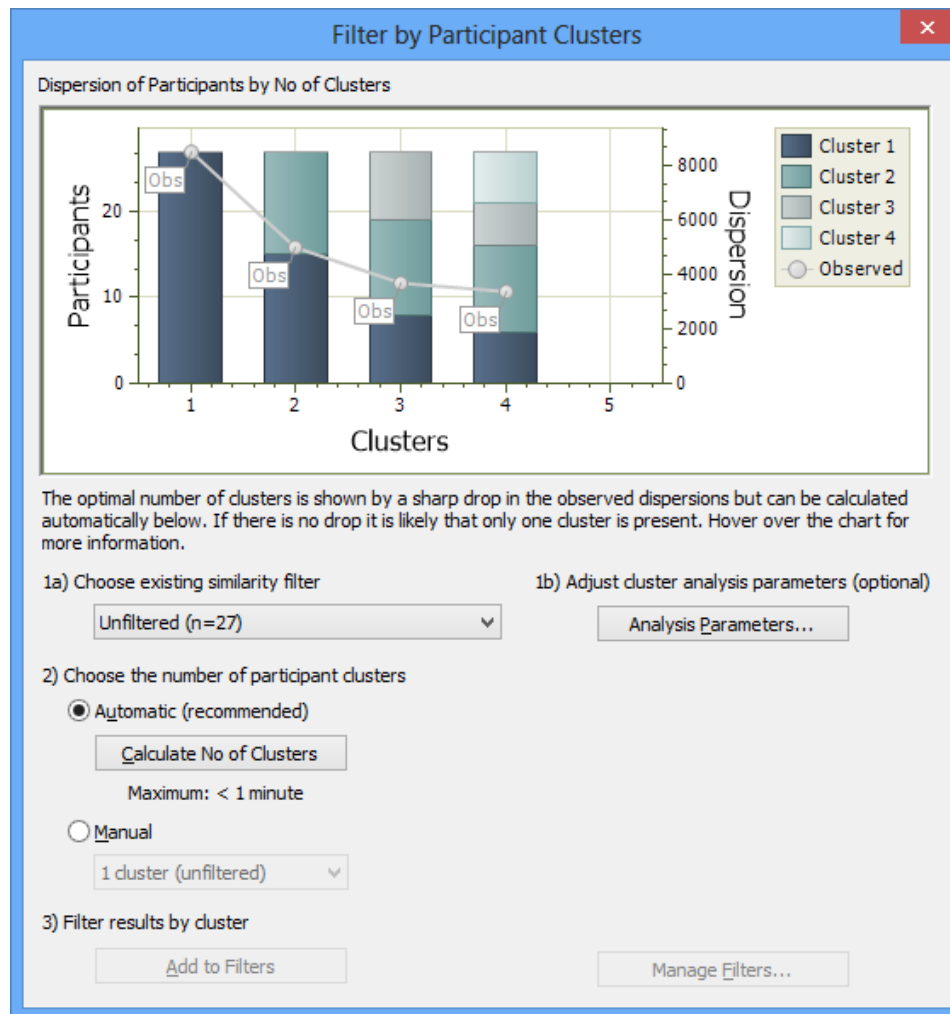


Figure 4, Participant Clusters Dialog

In this screen shot, the observed dispersions show a significant drop for the two-cluster solution. Clicking 'Calculate No of Clusters' will determine whether this drop is significant relative to a series of random trials (results shown below).

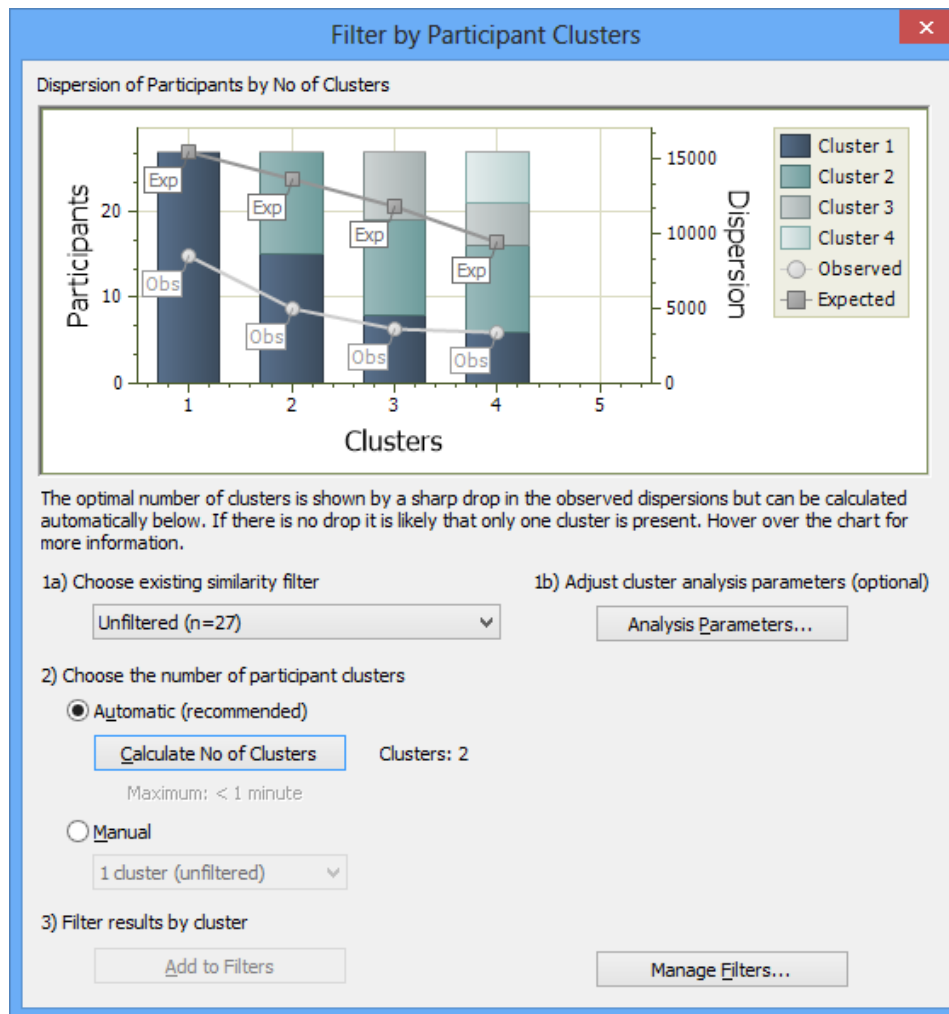


Figure 5, Participant Clusters Dialog after Automatic Cluster Calculation

Clicking 'Calculate No of Clusters' has added an 'expected dispersion' series to the chart. This is obtained by performing the same cluster analysis on a series of random trials. The two-cluster solution is significant and has automatically been added to the filter list. This can now be viewed or modified in the Manage Filters dialog. Selecting one of the filters in the main chart workbook will display the results for the appropriate participant subset.

These can be compared side-by-side using multiple windows. (This is a little unobvious but is the standard approach used in Microsoft Office.)

- 1) Use View->New Window to create a new view on the current chart workbook.
- 2) Click View->Tile Windows to place the original and new windows side-by-side.
- 3) Return to the Home ribbon and use the 'Select participant filter' dropdown to select the appropriate filter for each window (you will have to click on or Tab between workbook windows to do this).

If you would like to save the participant files for one or more filters, use the Home->Save Filtered feature. Note that the original data file is not modified; a subset file is created for each filter.

1.6 SPSS Script Output

SynCaps V3 creates separate SPSS script files for the weighted and unweighted item proximity matrices (the unweighted matrix consists of the unadulterated counts of the number of times each pair of items appeared together in a group, while the weighted version takes account of quality of fit / frequency of use, unnamed subgroups or nested group weightings). The scripts will perform cluster analyses in SPSS with dendrograms as part of the output. Note that these dendrograms will be very similar, but not identical to, those produced by SynCaps or other analyses. In particular, SynCaps deliberately shows items within each cluster in descending order of proximity.

For the SPSS analyses to be successful, two conditions must be met:

- 1) The variable names in the .sps file(s) need to conform to SPSS requirements. SynCaps replaces spaces in item names with underlines ('_') but does not attempt to replace any other punctuation. So, for example, if your item names contain ampersands ('&'), slashes ('/') or parentheses (to name just a few possibilities), you will need to open the file(s) with Notepad or similar and make appropriate substitutions.
- 2) When you open a .sps file in the SPSS syntax editor, either select the All command from the Run menu or select the whole file (Ctrl+A) before clicking the large, green 'Run Selection' icon. If you do not, SPSS will create a myriad cryptic error messages because it did not process all of the lines in the script.

You may wish to adapt the script files to run other analyses – factor analysis for example – but all of the above holds true nevertheless.

2 Syntax Editor

V3 includes its own syntax editor to help you enter or modify card sort data. You can use the syntax editor through one of the following methods. Note that methods 1 and 2 can be used either when SynCaps starts or by selecting an appropriate File command from the Home ribbon):

- 1) Create a new file or
- 2) Select a recent or existing file and click the 'Edit' button or
- 3) Start an analysis. If a message appears during import, select the edit option from the message dialog or
- 4) On a file opened for analysis, chose the 'Edit' item from the Data group in the Home Ribbon (shown below)

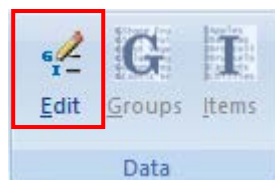


Figure 6, Data Group in Home Ribbon

The syntax editor opens as a separate document, but once import/export is complete it is connected to its analysis document. So editing a data file and saving it will give you the option of reprocessing it.

Using Ctrl+UpArrow in the syntax editor will move to the previous line of the current type. Conversely, Ctrl+DownArrow moves to the next line of this type. So, if you want to skip to the next participant, place the cursor somewhere in the current participant line and press Ctrl+DownArrow.

3 Bugs, Problems or Queries

Please contact us with any bugs, problems or queries. Write either to support@syntagm.co.uk or to me at the address below. Include your import data file if you can.

If you prefer you may telephone: +44 (0) 1235 522859 worldwide or 1-866-SYNTAGM (1-866-7968246) in North America. Bear in mind that we are on London time (GMT/BST).

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