

SonarWiz - Contact Rationalization

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1 Contact Rationalization in SonarWiz

1.1 What is Contact Rationalization?

The issue here is that side scan sonar datasets always have a degree of positioning uncertainty. This may be as small as sub-meter or it may be as large as 5 meters. As a result, an object that is imaged by two overlapping survey lines will be in different position on each line. Interpreters are forced to make a decision about the position to use for this object on the final chart. The position used must be derived logically, and this process needs to be auditable and repeatable. It's not good enough to simply use the position from the line on which the contact was first mapped.

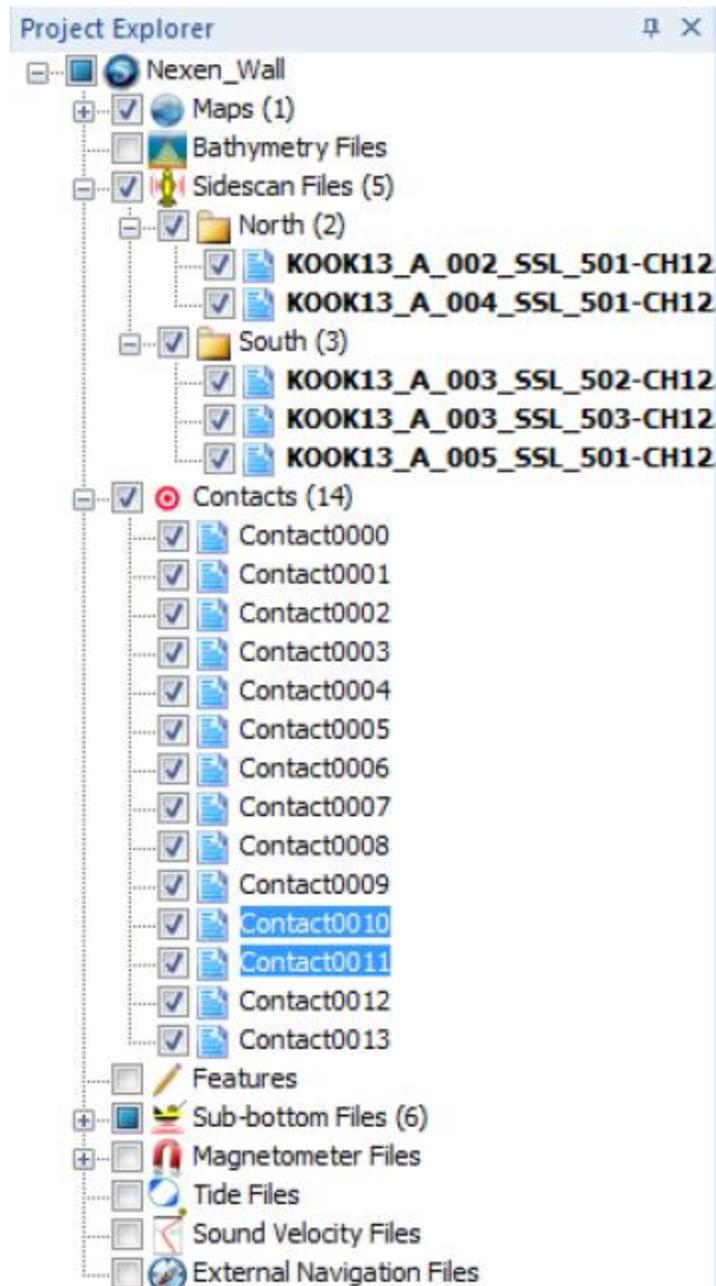
Contact Rationalization provides a means to combine multiple contacts into a single 'rationalized' new contact, with a position that embodies a conscious "rationalized" decision process. The rationalized contact is assigned the average position of the user selected input contacts. The new rationalized contact inherits the image and attributes of the first user selected contact **except for the measurements**. For measurements, the new contact is assigned the maximum height, maximum shadow and average width, length and scour of the user selected input contacts.



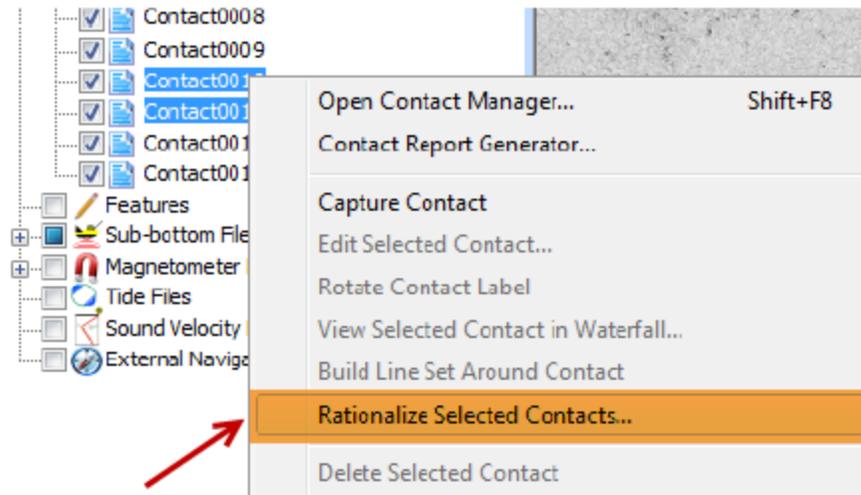
1.2 How do I use Contact Rationalization in SonarWiz?

Using Contact Rationalization in SonarWiz is easy. First select 2 or more contacts that represent the same object on the seafloor. You can select multiple contacts in the project explorer tree control or in the plan view by single clicking on the first contact and then Shift-clicking on subsequent contacts.

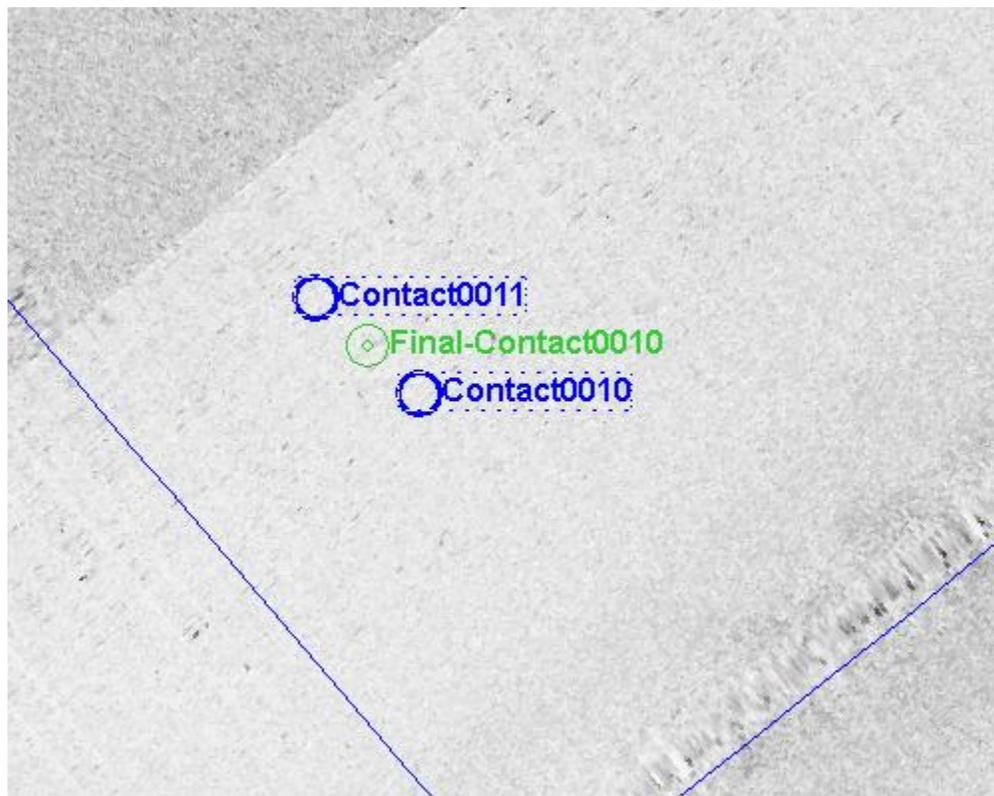
Consider contacts 10 and 11 in the plan view above and in the image below.



Notice that the user has already selected these two contacts. If the user now right-clicks on the selected contacts in either the tree control or on the plan view, a context menu appears offering a selection of operations that can be executed on the selected contacts.



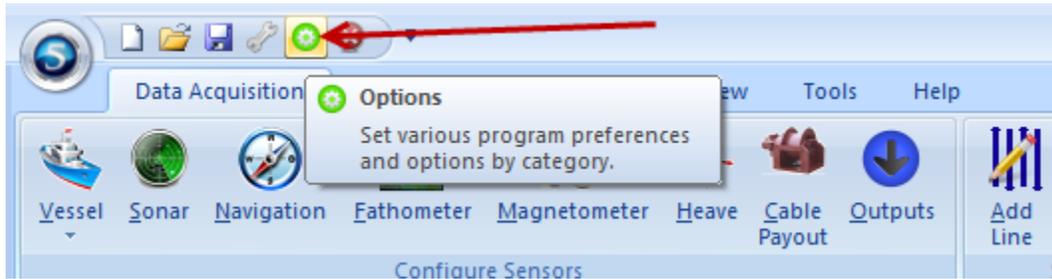
Simply selecting the Rationalize Selected Contacts... menu item SonarWiz will generate the newly generated contact as shown in the plan view below. Note that the new rationalized contact **has a different name, color and symbol** than the original contacts from which it was made.



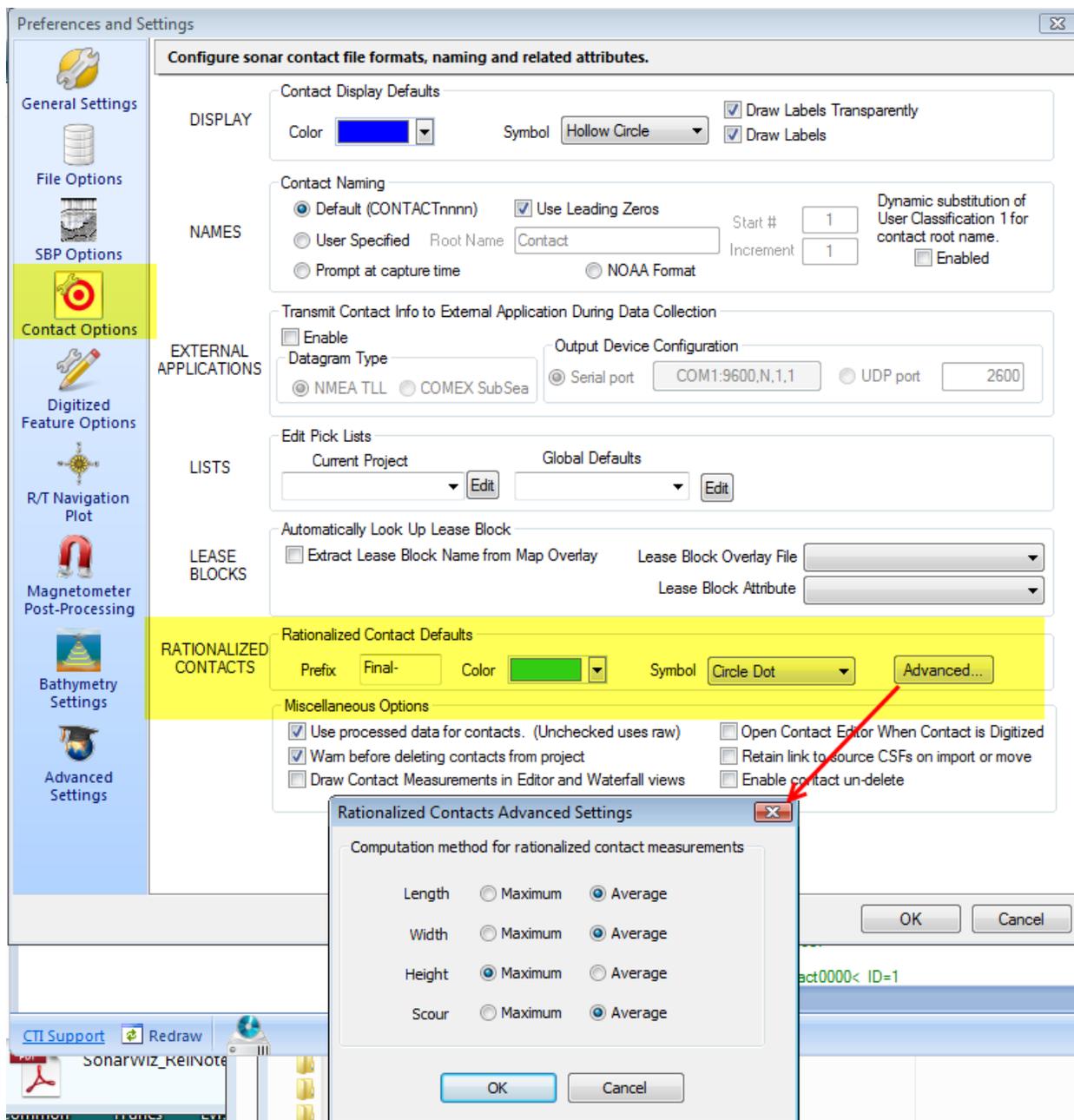
Also, note that the new rationalized contact is shown at the average position between the two original 'parent' contacts from which it was created. So, how do you control the name, color and symbol of the new rationalized contact? Read on...

1.3 Controlling the attributes of Rationalized Contacts

SonarWiz includes a, OPTIONS window that contains sections of options for each large group of functionality within the program:



The dialog that opens is labeled "Preferences and Settings". There is a special section dedicated to controlling the properties of Contact Options, and a subsection that controls how the rationalization process works. That window for contacts is shown below with the section relating to contact rationalization highlighted in orange.



These settings allow you to set the name and visual attributes of your rationalized contacts, as well as the computational method.

1.4 Reporting on Rationalized Contacts

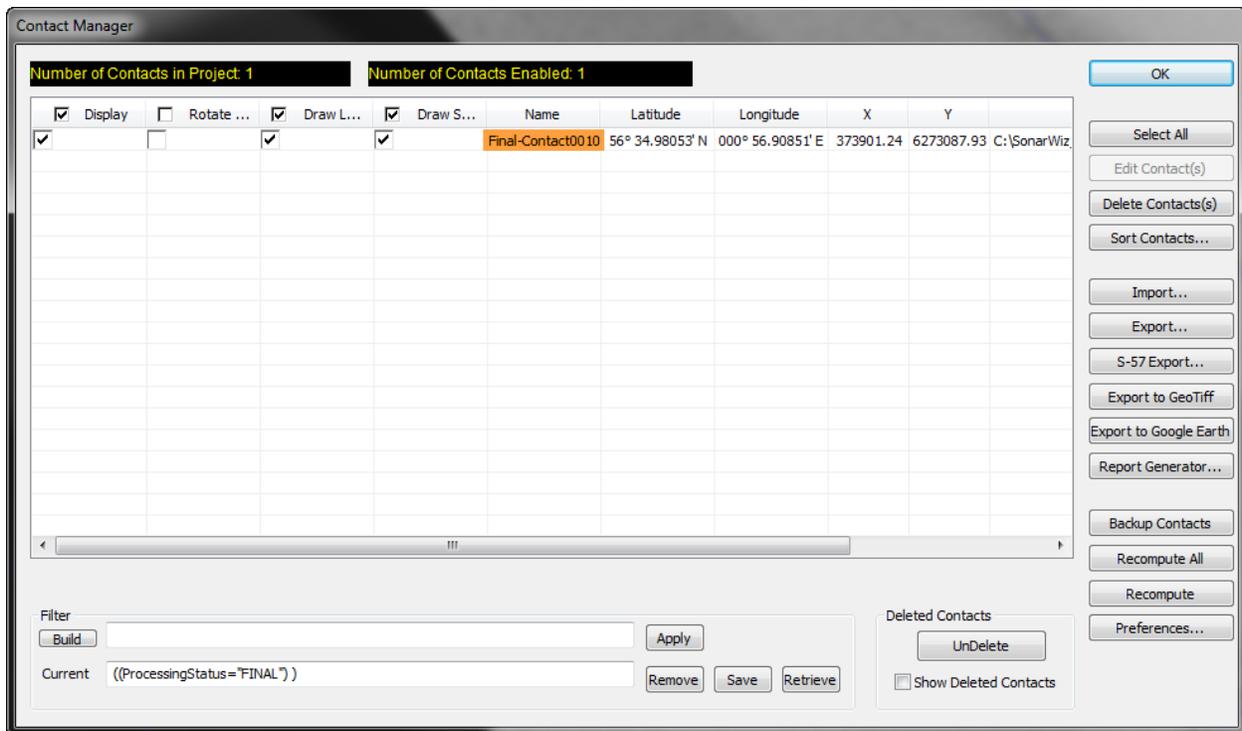
Rationalized contacts are assigned a special processing status attribute which can be used as a filter to select all of the contacts in your project that have received a special processing status of "Final". In SonarWiz versions 5.06.0052 and later, we've added a special built-in filter that allows you to filter and display only the "Final" contacts. This filtering capability makes it easy to list, display, export and report on only the contacts

that you have marked as final. The filter process is applied in the Contact Manager dialog as shown below. Use RETRIEVE -> Final Contacts, like so:

The screenshot shows the 'Contact Manager' application window. At the top, it displays 'Number of Contacts in Project: 15' and 'Number of Contacts Enabled: 15'. Below this is a table with columns for 'Display', 'Rotate ...', 'Draw L...', 'Draw S...', 'Name', 'Latitude', 'Longitude', 'X', and 'Y'. The table lists 14 contacts, each with a unique ID and coordinates. A 'Filter' section at the bottom left has a 'Build' button and a text input field. To the right of the filter are 'Apply', 'Remove', 'Save', and 'Retrieve' buttons. A 'Deleted Contacts' section on the far right has an 'UnDelete' button and a 'Show Deleted Contacts' checkbox. In the foreground, a 'Retrieve Contact Query' dialog box is open, showing a list of saved queries: 'Final Contacts', 'Final Contacts', and 'long contacts'. The 'Final Contacts' query is selected. The 'Query Where Clause' is 'ProcessingStatus='FINAL''. The 'Comments' field contains the text: 'This will produce a set of contacts that have the ProcessingStatus value set to FINAL'. The dialog has 'Delete', 'Cancel', and 'OK' buttons. A red arrow points from the 'Retrieve' button in the main window to the 'Retrieve Contact Query' dialog box.

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Name	Latitude	Longitude	X	Y
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0000	56° 32.34816' N	001° 00.71909' E	377844.02	6268068.98
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0001	56° 32.50532' N	001° 00.41781' E	377543.76	6268369.42
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0002	56° 33.01994' N	000° 59.71869' E	376855.29	6269344.73
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0003	56° 32.92110' N	001° 00.81349' E	377971.50	6269128.81
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0004	56° 32.84798' N	001° 00.56657' E	377714.61	6269000.53
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0005	56° 34.81721' N	000° 57.15523' E	374328.73	6272755.59
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0006	56° 34.52495' N	000° 57.31835' E	374479.54	6272208.55
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0007	56° 33.83122' N	000° 58.40296' E	375551.88	6270888.98
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0008	56° 34.38771' N	000° 57.54471' E	374703.70	6271947.11
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0009	56° 34.64364' N	000° 57.38446' E	374553.77	6272426.66
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0010	56° 34.97369' N	000° 56.92289' E	373915.59	6273074.80
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0011	56° 34.98737' N	000° 56.89413' E	373886.90	6273101.06
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0012	56° 35.05849' N	000° 57.38216' E	374390.36	6273218.06
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contact0013	56° 35.06383' N	000° 57.38374' E	374392.27	6273227.91
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Final-Contact0010	56° 34.98053' N	000° 56.90851' E	373901.24	6273087.93

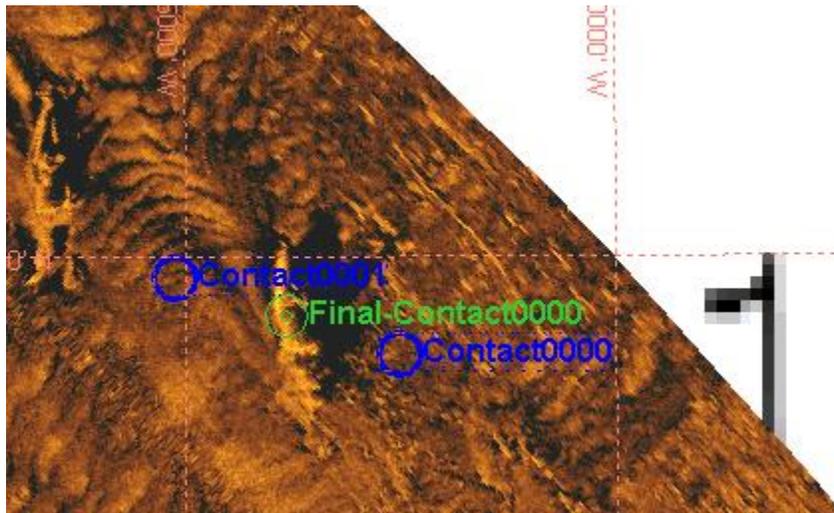
After applying the filter, note that only the contacts that have been assigned a "Final" processing status are displayed....



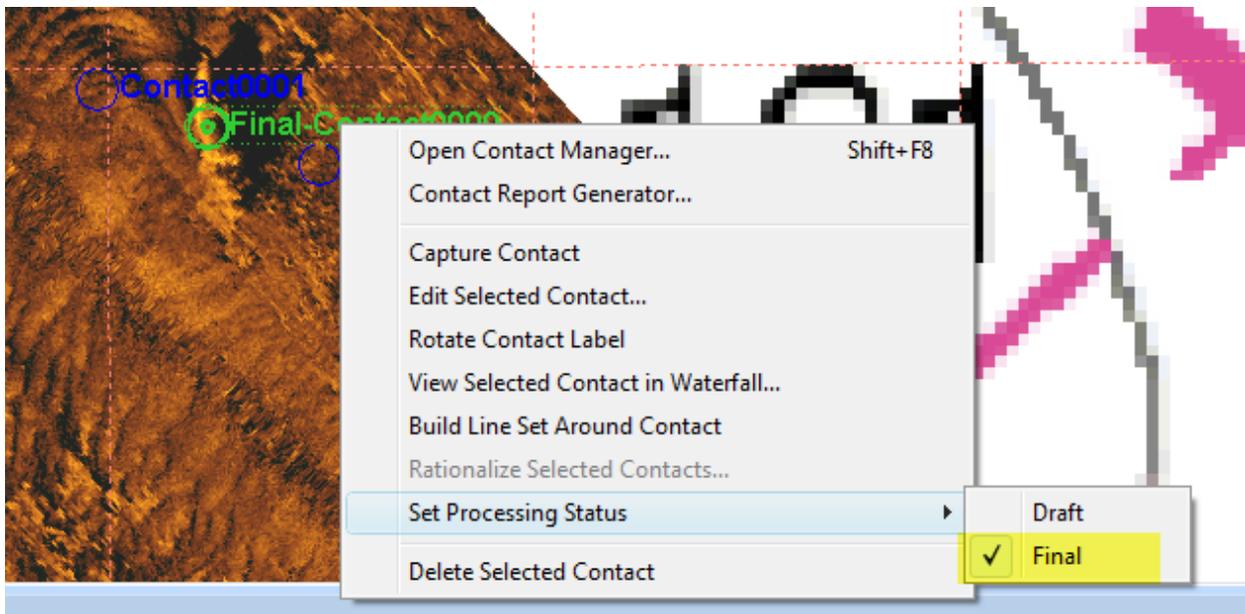
You can turn on and off the Final filter anytime during your interpretation phase.

1.5 "Final" Contact - DRAFT vs FINAL status

In the MAP view, you can see your "Final" contact in an average position between the others:



You may then select the "Final" contact, right-click to edit it, and transition its "status" from DRAFT to FINAL, this way:

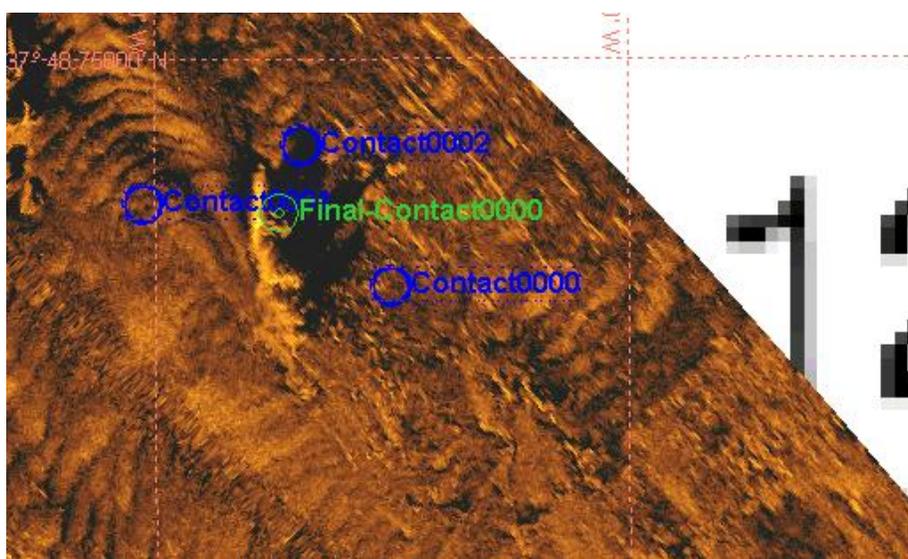


This status is just an informational status - to help you keep track of whether a final decision has been made about accepting the position of the rationalized contact or not. Set it to DRAFT if it is still under review.

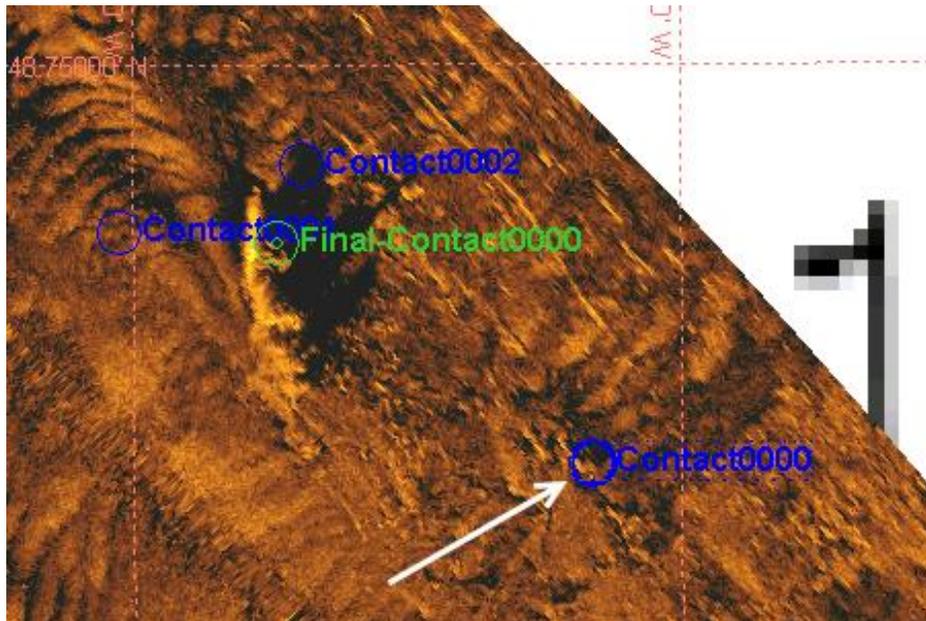
1.6 Moving a rationalized contact - better to delete and restart

Nothing prevents you from trying to move the rationalized contact in the Contact Editor, but this is not a supported design feature of rationalized contacts, so please don't do it. Even moving the positions of the contributing "parent" contacts does not correctly reposition the rationalized contact.

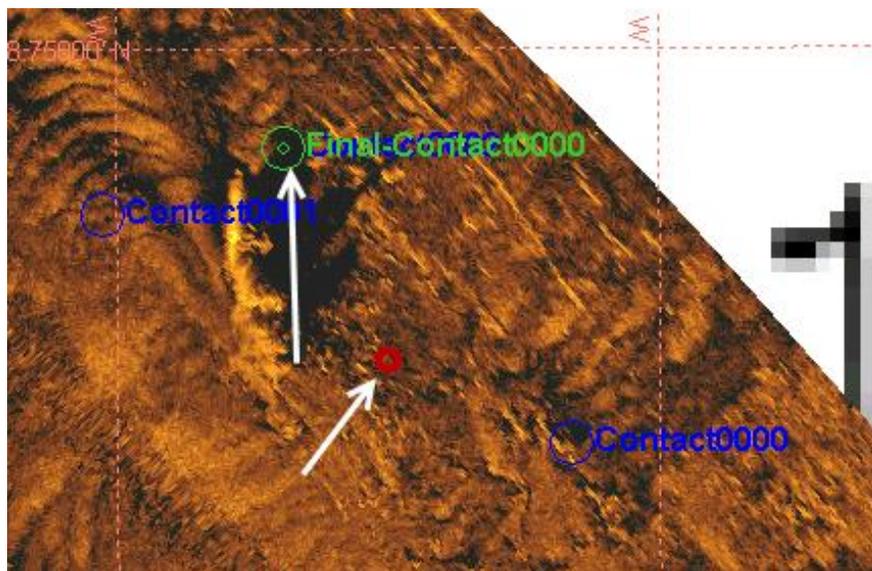
Here's a rationalized contact with 3 parents:



(1) Contact 0000 is then moved in the contact editor, where 3 "parent" contacts had been averaged to create "Final-Contact0000":



(2) Then we open the Contact Manager and do a RECOMPUTE ALL:



The "Final-Contact-0000" has moved, but not to the right place. This may become a supported feature in the future, but in 5.06.0054, we advise against it. The Final-Contact-0000 moved UP, when it should have moved to the RED CIRCLE location.

So the *nota bene* here: work sequence is very important in doing rationalized contacts. For now, the advice is ... move contact positions BEFORE the rationalized contact is created. If you need to re-position any of the parent contacts it at all, just deleted the rationalized contacts and restart. This is a new feature, so functions may evolve, and it is just a first-draft implementation. It looks like it has a lot of potential though!

2 Documentation and Feature Change History

Rev 5.06.0054 - initial release of support documentation. Feature support has been implemented in two steps, easy to see in the SonarWiz 5 VERSION HISTORY area, here:

<http://www.chestech-support.com/ctisupport/versionHistory.asp?p=swiz5>

5.06.0052 (4/11/2014) - initial implementation feature description:

ENHANCEMENT:SSS:MINOR -- Added new sonar contact controls in the Preferences dialog to specify the prefix name, color and symbol to be assigned to "rationalized" contacts. Rationalized contacts represent an "average" contact automatically generated based on a user selected set of two or more contacts. Rationalized contacts contain the averaged position, maximum height and shadow measurements and use the first selected contact image and for minor attributes.

5.06.0054 (4/25/2015) - revised implementation release note:

Added new contact test when rationalizing multiple contacts. The input contacts are tested to see if they all have the same input class--which they should since the user is saying they are all the same contact. If the input contacts have different (and non-empty) class values, the user is advised they need to verify the class in the rationalized contact.

5.06.0057 (5/16/2014) - Addition of Contact Options -> Rationalized Contacts -> Advanced Options to control computational method of length, width, height, and scour measurements.