



A New Approach to Targets in HYPACK 2015

By Dave Maddock

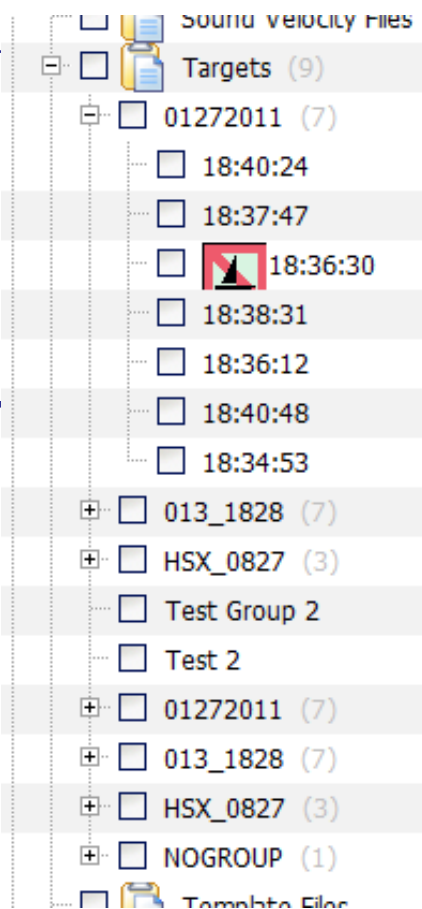
A target can be much more than just an XY position, but much more *what* varies by project and technology used. For example, for a side scan target you probably want to record its height, length, width, and a capture file; for magnetometer data, the strength of the reading from peak to trough or duration; for sub-bottom, the depth of burial.

FIGURE 1. A Target Database Opened In the HYPACK® Shell

HYPACK® 2014 stored its target information in a simple ASCII file format which was not flexible enough to cover all these various use cases simultaneously. For the new 2015 release we have revamped how target data is handled to allow targets and their metadata to co-exist better across the package and to enable more advanced features in the future.

THE TARGET DATABASE CONCEPT

In HYPACK® 2015, each project maintains a database of targets (in a file called 'targets.db' in the project root folder). All HYPACK® programs--acquisition, processing, and final products--read and write target information to this database. Where the old TGT format supported a fixed list of 16 attributes per target, the database model currently supports 38 fields and counting. Switching to a database model, means this can be extended easily into the future and different programs don't have to parse, store, or write target fields they don't need--so you don't have to worry about extended metadata getting lost in the mix.



WHAT LOOKS THE SAME IN THE SHELL?

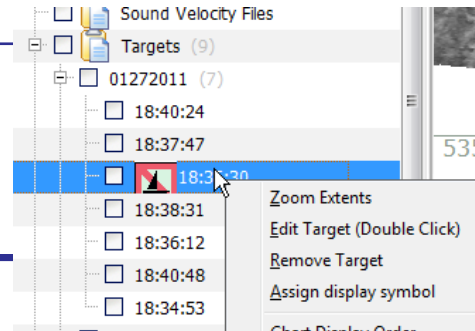
Figure 1 is a screen shot of the targets listing from a 2015 project. The look is very similar. Where 2014 allowed you to divide your targets into several TGT files (say, by survey date or line name), 2015 allows you to create **target groups**. You are free to create groups appropriate for your work flow, but HYPACK® will also create several default groups by program name: SURVEY, HYSWEEP, HYSCAN, etc. If you convert a 2014 project, a group will be created for each TGT file listed in the project. Each group can be turned on or off just like a TGT file.

WHAT LOOKS DIFFERENT IN THE SHELL?

The most notable difference in the HYPACK® SHELL is that each target name is visible in the tree and can be turned on/off independently. If a target is assigned an S57 symbol, it too is displayed.

FIGURE 2. Right-click to Edit the Target

Right-clicking on a target or target group allows you to import or export a TGT or TXT file, assign an S57 symbol, or open the Target Editor.



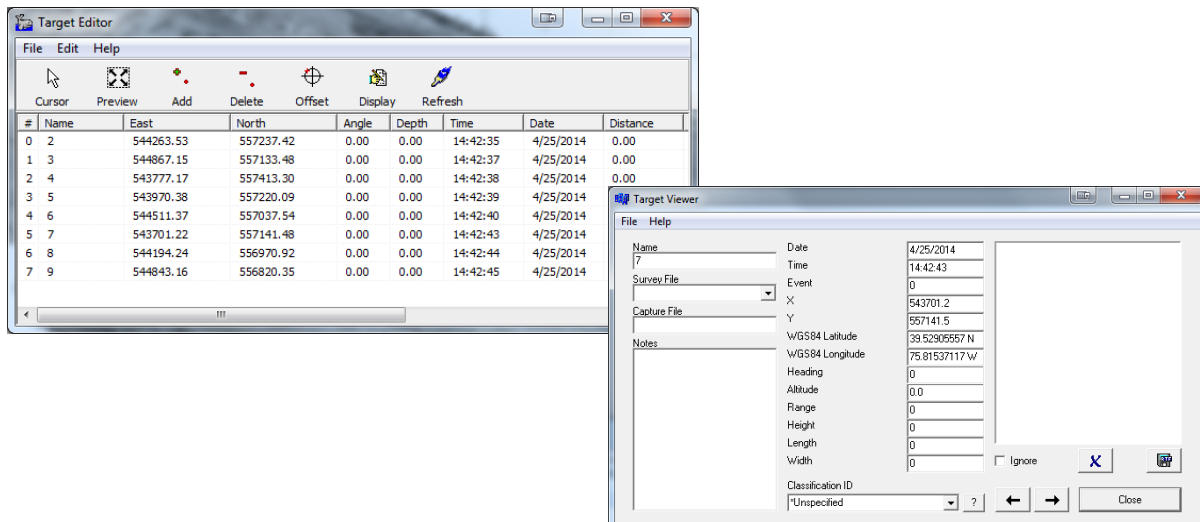
TARGETING IN THE SHELL

Targets, groups, and S57 symbols can be added or deleted right from the Project Items tree. Selecting 'Target Editor' mode from the toolbar allows you to mark targets in the Shell map. For more detailed editing, double-click a target to get the full Target Editor program.

THE 2015 TARGET EDITOR

HYPACK® 2014 and earlier included two similar programs for viewing target data. A generic "Target Editor" which looked like a spreadsheet and "Target Viewer" for side scan targets.

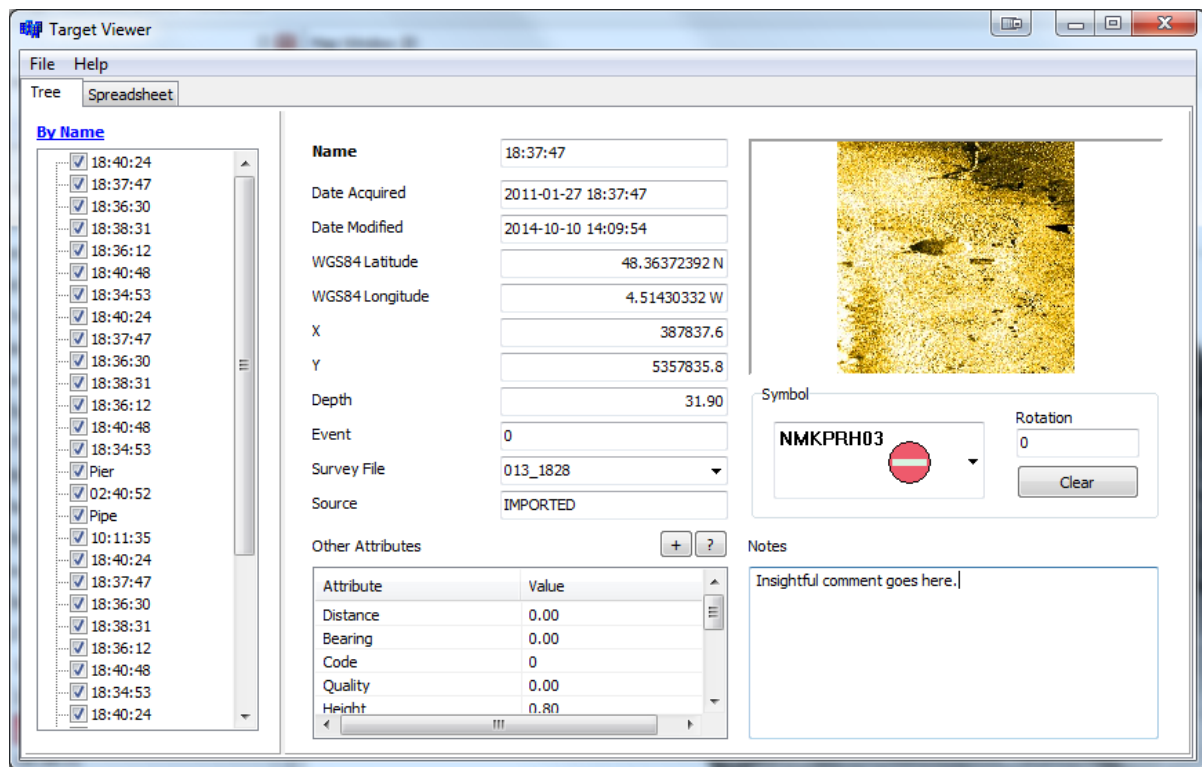
FIGURE 3. Target Editor 2014 (left), Target Viewer 2014 (right)



These two programs were combined for 2015.

NEW TARGET EDITOR - TREE VIEW

FIGURE 4. TARGET EDITOR—Tree View



The Tree view combines the side scan style display with the tree of target names and groups. The tree can be ordered by Target Name, Group, Survey Line Name, or Date. You can multi-select targets and drag them into a group en masse here if you wish. The universal target attributes are prominently displayed on the right with capture file, symbol, and notes. Any additional attributes are listed at the bottom.

NEW TARGET EDITOR - SPREADSHEET VIEW

FIGURE 5. Spreadsheet View

	Name	Date Acquired	WGS84 Latitude	WGS84 Longitude	Source	Symbol	X	Y
1	18:40:24	2011-01-27 18:40:24	48.36527455 N	4.5185686 W	IMPORTED		387525.1	53580
2	18:37:47	2011-01-27 18:37:47	48.36372392 N	4.51430332 W	IMPORTED		387837.6	53578
3	18:36:30	2011-01-27 18:36:30	48.3644955 N	4.51200528 W	IMPORTED		388009.5	53579
4	18:38:31	2011-01-27 18:38:31	48.36424421 N	4.5157175 W	IMPORTED		387734.0	53578
5	18:36:12	2011-01-27 18:36:12	48.36497284 N	4.51203561 W	IMPORTED		388008.3	53579
6	18:40:48	2011-01-27 18:40:48	48.36551896 N	4.51920505 W	IMPORTED		387478.5	53580
7	18:34:53	2011-01-27 18:34:53	48.36647324 N	4.51116865 W	IMPORTED		388075.8	53581
8	18:40:24	2011-01-27 18:40:24	48.36527455 N	4.5185686 W	IMPORTED		387525.1	53580
9	18:37:47	2011-01-27 18:37:47	48.36372392 N	4.51430332 W	IMPORTED		387837.6	53578
10	18:36:30	2011-01-27 18:36:30	48.3644955 N	4.51200528 W	IMPORTED		388009.5	53579
11	18:38:31	2011-01-27 18:38:31	48.36424421 N	4.5157175 W	IMPORTED		387734.0	53578
12	18:36:12	2011-01-27 18:36:12	48.36497284 N	4.51203561 W	IMPORTED		388008.3	53579
13	18:40:48	2011-01-27 18:40:48	48.36551896 N	4.51920505 W	IMPORTED		387478.5	53580
14	18:34:53	2011-01-27 18:34:53	48.36647324 N	4.51116865 W	IMPORTED		388075.8	53581
15	Pier	2014-09-30 21:02:33	48.36622121 N	4.50788682 W	IMPORTED		388318.3	53581
16	02:40:52	2014-09-30 21:02:33	48.36571873 N	4.50984109 W	IMPORTED		388172.5	53580
17	Pipe	2014-09-30 21:02:33	48.36572773 N	4.50984095 W	IMPORTED		388172.5	53580

Here is the spreadsheet view. Every field can be edited in-place. Clicking on a header sorts the sheet by that column, ascending or descending. Columns can be resized and reordered by clicking and dragging. New columns can be added (or hidden) using the Columns menu. There are currently 38 viewable columns:

- Name
- Latitude
- Date & Time Modified
- Depth
- S57 Symbol
- Code
- Sigma
- Height
- Range
- Capture File Name
- Distance
- Peak Maximum
- Enabled in Shell
- X
- Longitude
- Source Program Name
- Event Number
- Distance
- Quality
- Circle Radius
- Length
- Tow Fish Altitude
- Display Method
- Time Elapsed
- Peak Spread
- Y
- Date & Time Acquired
- Survey Line Name
- Notes
- Bearing
- Angle
- Number of Circles
- Width
- Tow Fish Heading
- Target Class Name
- Peak Minimum
- Depth of Burial

WORKING WITH 2014 AND 2015 TOGETHER

HYPACK® 2015 can still import and export the TGT file format if you need to share data among computers with different versions of HYPACK®.

To save any group to TGT format, simply right-click on the group name in the Project Items list and select "Export Targets: .TGT File."

To import a TGT file into a 2015 project, right-click on "Targets" in the Project Items list and select "Import Targets: .TGT File."

FINAL THOUGHTS

The new target features of HYPACK® 2015 have been designed to be as painless as possible. Experienced users of HYPACK® 2014 should find that the vast majority of programs continue to work with targets exactly as they used to, especially if they generate simple position targets without extra detail. Users who require more complicated targeting, such as with side scan, should enjoy the new capabilities a database provides now and for future improvements.