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Sounding Better!

Targeting in MAGEDIT

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INTERPRETING MAGNETOMETER TARGETS

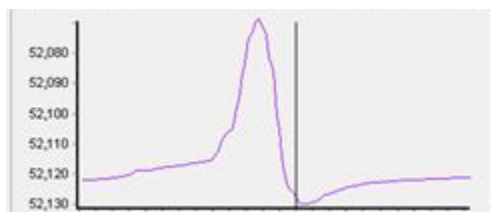
Before getting into the nitty-gritty of how to mark targets in MAGEDIT (the MAGNETOMETER EDITOR), there are a few worthwhile concepts to mention to clarify when you have a worthwhile target on hand. When examining a potential target area (See [Figure 1](#)), there are two quick indicators that can give you an idea of what you are looking at.

- **Mass of the target**, which is how much it rises or falls from the baseline, but that isn't enough information on its own to make an informed decision.
- **Duration of the target** or, in other words, the distance the target spans. If a target has an amplitude jump for a second, then the target could just be a small piece of metal passing under the sensor. However, if the target has both mass and a long duration, then it could indicate you are passing over or near something a bit more interesting.

If a target has duration, then you have another problem which is picking 1 location over a set of coordinates that span the range of the target. For instance, if there is low amplitude with duration, it could be that you are far away from the target and actually need to do some more surveying.

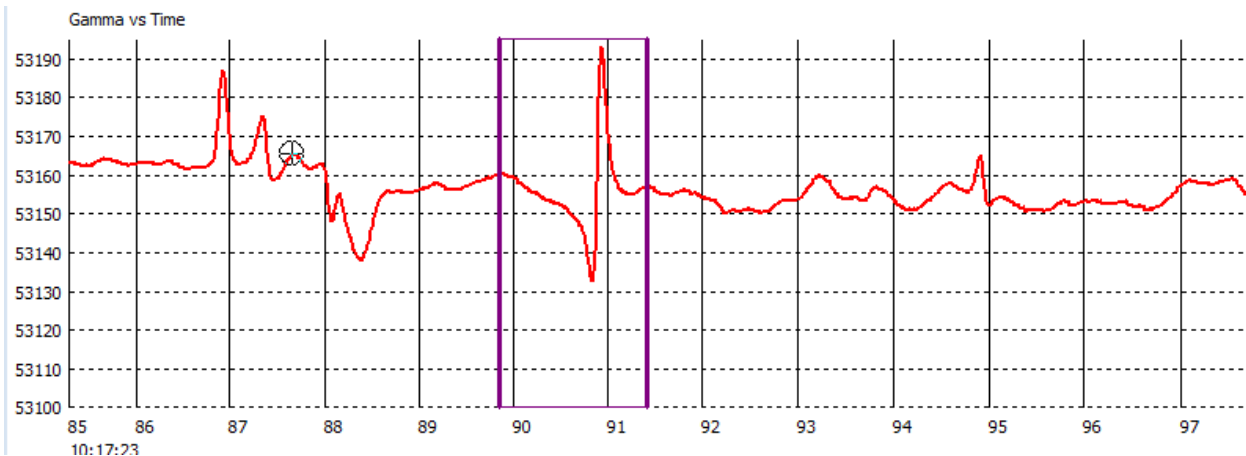
A **monopole** anomaly (spike in one direction) is often caused by an isolated source such as a crab trap or large debris. This means that the location is often pretty close to the middle of the spike.

FIGURE 1. *Sample Target*



Dipolar (swings from a spike in one polarity to the other) targets can be linear targets such as a pipeline, which makes location a bit harder. Dipolar targets (Figure 2) become clearer as you run additional lines and piece together what you are seeing as you survey over different sections of it.

FIGURE 2. Dipolar Target



Now that we know what a target might look like, let's talk about marking them in HYPACK®.

MARKING TARGETS

There are three main ways to create targets in MAGEDIT: creating a target based on a point, creating a target based on a range of points, or automatically detecting target areas.

SINGLE POINT

The most basic is operating on a single point, which can be done from both the profile window and the spreadsheet. On either window, select a point or row of interest by clicking on it then pressing the F5 button to pop up the single point target window (Figure 3).

FIGURE 3. Single Point Target Window

This window allows you to write a description, confirm the Easting, Northing and Gamma, and select which target group the point will be added to. Click [OK] and the target is written to the database and the HYPACK® Shell updates upon MAGEDIT closing.

WHOLE MAGNETIC ANALYSIS TOOL

The next method of targeting takes a few extra clicks, but provides a much more robust view of the target before committing it to the database. This method is found on the Profile Window using a button with the

“Block Information” tooltip (See [Figure 4](#)) though it’s sometimes called “the Whole Magnetic Analysis Tool”. Upon clicking the button, you will see your cursor change to a magnifying glass that will allow you to place flags on the profile window. Where you place the two flags defines the target range used to create the target information and causes an expanded target window to appear ([Figure 5](#)).

FIGURE 4. Block Information Button and Sample Flag

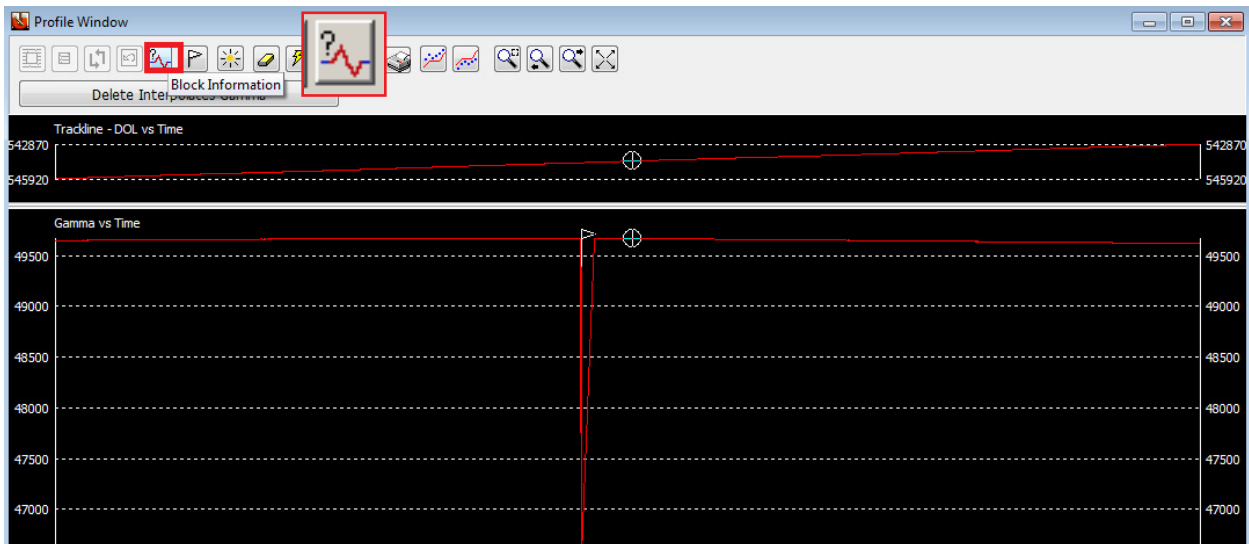
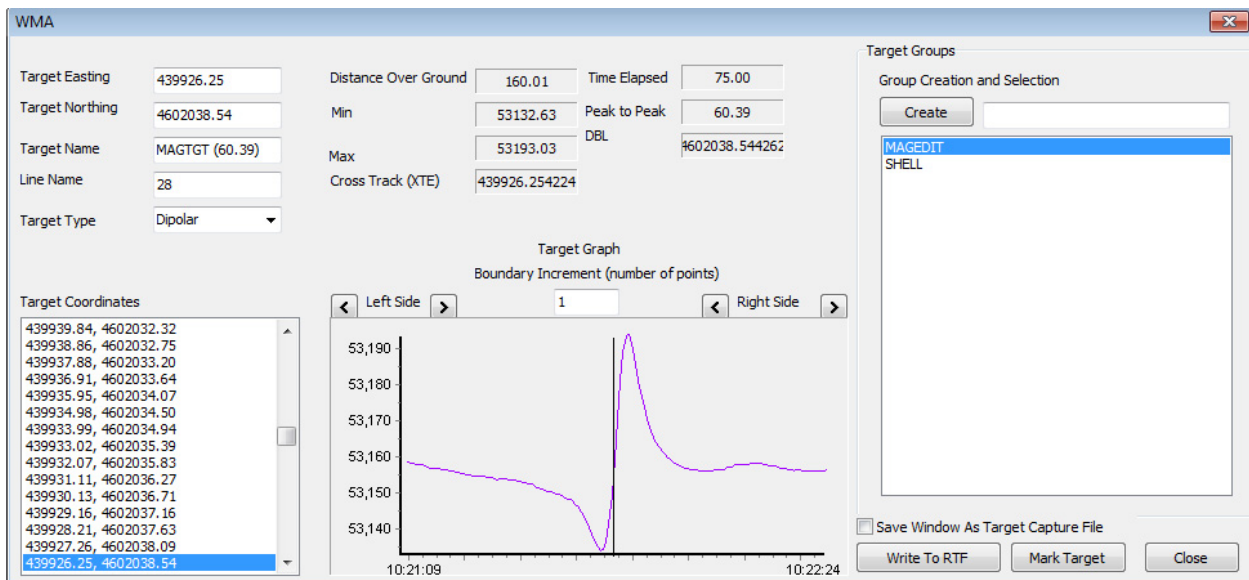


FIGURE 5. Expanded Target Window



The expanded target window contains calculated information on the target range you marked and will save much of that to the HYPACK® target database. Calculated information includes the minimum and maximum gammas of the range, the peak-to-peak value, time elapsed and the distance over ground. Like the other window, you can confirm the coordinates of the target and add a description, but you can also manually identify the target type. Additionally, you can use the “Write to RTF” button to append your target information to a text file in order to deliver a report to the client.

AUTO-DETECTION

The last method is sort of an oddball, that we experimented with a while ago. It quickly detects targets then lets you decide to reject/accept them. Select **TOOLS>AUTO-DETECT ANOMALIES** which starts this method of targeting. Targets are detected once the window appears and it populates a spreadsheet with the targets found (Figure 6). Additionally, it draws the detection gate, in purple, in the profile window for you to audit. You can then alter the gate and spike limit size (Boxes in Figure 6) to fine tune the detection.

To save the target, select the target (click in the row) to access the whole magnetic analysis tool. From there, you can either save the target to the database or to an RTF file.

FIGURE 6. *Auto Detection Window*

