HOWTO: Track Down a TWAIN Custom Capability

Within the TWAIN specification, there is room for what they call "custom capabilities" or "custom cap". This is a range of TWAIN Capability id's that are reserved to allow each scanner manufacturer a place to put access to features that fall outside the normal, spec-defined features in TWAIN.

TWAIN Custom capabilities are from 0x8000-0x8FFF

Some scanner manufacturers publish their custom capability ids and functions, but most do not. So while DotTwain gives you the ability to get/set custom caps (see FAQ: Can DotTwain access custom capabilities? for the specifics on HOW to use them once you've found them)

However, all is not lost.

If you have the actual scanner in question available, then you may be able to find out the custom CAP ID for a feature you're interested in... this is not a guarantee as the scanner must actually provide a means to set the feature in its UI and must expose that feature as a TWAIN capability.

First, download Twister:

http://www.eztwain.com/twister.htm

Now, use it to run a report... if the capability you're looking for is of a known type - let's say Boolean, then by looking at the report and finding all the 0x8FFF caps that have a BOOLEAN type, you're partway there. Here's an example from a recent case where a customer had a Canon DR-G1100 scanner, and they were looking for a DoubleFeedDetection feature (which is likely a simple Boolean value)

They ran Twister and it came back with a list of supported Caps:

CAP_SUPPORTEDCAPS:

GET.....uint16 ARRAY[CAP_0x8101, CAP_0x8100, CAP_AUTOFEED,

CAP_AUTOSCAN, CAP_0x801d, CAP_CAMERAENABLED, CAP_0x801e,

CAP_CAMERAORDER, CAP_CAMERASIDE, CAP_CUSTOMDSDATA,

CAP_CLEARPAGE, CAP_FEEDPAGE, CAP_DEVICEONLINE, CAP_DUPLEX,

CAP_DUPLEXENABLED, CAP_ENABLEDSUIONLY, CAP_ENDORSER,
CAP_FEEDERALIGNMENT, CAP_FEEDERENABLED, CAP_FEEDERLOADED,
CAP_INDICATORS, CAP_JOBCONTROL, CAP_PAPERDETECTABLE,
CAP_PRINTER, CAP_PRINTERENABLED, CAP_PRINTERINDEX,
CAP_PRINTERMODE, CAP_PRINTERSTRING, CAP_SUPPORTEDCAPS,
CAP_UICONTROLLABLE, CAP_XFERCOUNT, ICAP_AUTOBRIGHT,
ICAP_AUTOSIZE, ICAP_AUTOMATICBORDERDETECTION,
ICAP_BITDEPTH, ICAP_BITDEPTHREDUCTION, ICAP_BITORDER,
ICAP_BRIGHTNESS, ICAP_COMPRESSION, ICAP_CONTRAST,
ICAP_EXTIMAGEINFO, ICAP_FILTER, ICAP_FRAMES,
ICAP_HALFTONES, ICAP_IMAGEFILEFORMAT, ICAP_JPEGQUALITY,
ICAP_MAXFRAMES, ICAP_MINIMUMHEIGHT, ICAP_MINIMUMWIDTH,
ICAP_ORIENTATION, ICAP_PHYSICALWIDTH, ICAP_PHYSICALHEIGHT,
ICAP_PIXELFLAVOR, ICAP_PIXELTYPE, ICAP_PLANARCHUNKY,
ICAP_ROTATION, ICAP_SUPPORTEDSIZES,
ICAP_UNDEFINEDIMAGESIZE, ICAP_UNITS, ICAP_XFERMECH,
ICAP_XRESOLUTION, ICAP_YRESOLUTION, CAP_0x8034,
CAP_0x8062, CAP_0x8049, CAP_0x804a, CAP_0x8069,
CAP_0x80a1, CAP_0x8003, CAP_0x8029, CAP_0x805d,
CAP_0x8057, CAP_0x806b, CAP_0x8000, CAP_0x800d,
CAP_0x80b8, CAP_0x8006, CAP_0x8007, ICAP_THRESHOLD,
CAP_0x8036, CAP_0x8035, CAP_0x8001, CAP_0x8076,
CAP_0x8037, CAP_0x8058, CAP_0x8059, CAP_0x8065,
CAP_0x8042, CAP_0x8070, CAP_0x8079, CAP_0x8077,
CAP_0x8078, CAP_0x8025, CAP_0x8008, CAP_0x8032,
CAP_0x8011, CAP_0x8009, CAP_0x800b, CAP_0x80b4,
CAP_0x800c, CAP_0x80b3, CAP_0x806c, CAP_0x806f,

CAP_0x806e, CAP_0x80a4, CAP_0x80a3, CAP_0x8043,

CAP_0x8018, CAP_0x8004, CAP_0x8016, CAP_0x803f,

CAP_0x8040, CAP_0x807e, CAP_0x8080, CAP_0x8081,

CAP_0x803b, CAP_0x8068, CAP_0x806a, CAP_0x805f,

CAP_0x8060, CAP_0x8087, CAP_0x8086, CAP_0x8053,

CAP_0x8088, CAP_0x8061, CAP_0x803d, CAP_0x80eb,

ICAP_AUTOMATICDESKEW, CAP_0x802a, CAP_0x80a2, CAP_0x8082,

CAP_SERIALNUMBER, CAP_0x8089, CAP_0x8084, CAP_0x808a,

CAP_0x80b0, CAP_0x80b1, CAP_0x80ae, CAP_0x80af,

CAP_0x800e, CAP_0x80f8, CAP_0x80f9, CAP_0x8063,

CAP_0x80e8, CAP_0x80da]

Great, now, looking at all CAP_0x8FFF (I've pruned the list of all but custom caps that have BOOLEAN value types:

CAP_0x801d:

GET.....bool TRUE

CAP_0x80eb:

GET.....bool ENUM{ FALSE, TRUE } Current: FALSE, Default: FALSE

CAP_0x8100:

GET.....bool FALSE

CAP_0x8101:

GET.....bool FALSE

Now, searching for these in your favorite search engine may in fact reveal one of our own KB articles:

FIX: AutoDiscardBlankPages Doesn't Work With Canon Scanners

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... and it just so happens that it mentions that cap 0x8001 is used to enable/disable auto blank page detection. So, unless you were looking for Blank Page Detection (hint: look in the article, there's another cap you need to make it work for Cannon Scanners that support it), you can just cross it off the list of candidates for the DoubleFeedError reporting. (since hypothetically, that's what we're looking for)

So, now you need another tool... This time, it's TWIRL Twain Protocol Analyzer - TWISTER gave us a generic list of all features the scanner reported supporting and what happened when it get/set them, but it didn't identify the one(s) of interest entirely. So download Twirl.

TWIRL Twain Probe

Remember, custom capabilities show up in Twirl as CAP_0x8002, CAP_0x801d, etc.

1. Open and enable the TWAIN driver (which brings up the driver's UI)

2. In Twirl, enable the 'monitor' mode (a two-state pushbutton under the Capabilities list)

3. In the scanner UI, change the setting of interest e.g. from Document to Photo

4. Watch to see if Twirl detects a capability changing.

If you are lucky, you'll see the value clearly toggling and you can then use the approach mentioned here to set or get the value as needed.

However, this doesn't always work. So you have to go through the custom capabilities 'by hand' so to speak

1. Put the TWAIN driver into the Open state.

2. Note the value of all the custom capabilities that seem like they might control the feature you're after.

(In our DoubleFeedDetection example, it's probably going to be Boolean or an enum that parses to Boolean, so not an integer or string .)

3. Enable the driver and change Document to Photo or vice versa.

4. Disable the driver or start a scan, forcing the driver to 'save' what is shown in it's UI

5. Back in Twirl go through and click on each possible custom capability which triggers a 'MSG_GET' which shows the latest value. Again, you are looking for one that has changed.

6. Assuming you find it, you can use the [Set] and [Reset] buttons to see if you can control the setting (SET it, then Enable the driver, see what the UI shows, Disable the driver, SET a different value, Enable the driver, see if the UI value has changed.)

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https://www.atalasoft.com/kb2/KB/50098/HOWTO-Track-Down-a-TWAIN-Custom-Capa...