



Background Charts Supported in HYPACK®

By Judy Bragg

HYPACK® supports a wide range of electronic charts. They are used in HYPACK® and the survey and editing programs to lend context to your work.

- **ARCS Chart Files:** The Admiralty Raster Chart Service (ARCS) is the digital reproduction of Admiralty charts for use in electronic navigational systems. They are available for most areas of the world. The ARCS charts installation includes a geo-referencing routine to align your charts properly according to the geodesy settings in your project. To display these charts, your dongle must be specially encrypted for this purpose. Keys issued before January 2004, must be updated with this encryption.
- **ArcView Shape Files** are line and polyline shape files (*.SHP) are available from ArcView and ArcInfo. For each SHP file, you can specify the line color, the fill color and the file type. Currently, we do not draw the text or allow access to any attribute data. We are studying the format to determine how we can improve the use of these files.
- **BSB Chart Files (*.KAP and *.CAP)** are commercially available raster chart files. These files contain electronic chart information and are based upon a particular ellipsoid and projection. For proper alignment of these charts, the geodetic parameters of HYPACK® should be set to match those of the BSB chart. Unencrypted, version 3 charts covering regions in the United States may be downloaded, free of charge, from the NOAA site (<http://www.nauticalcharts.noaa.gov/mcd/enc/index.html/>). HYPACK® supports through version 4 charts.
- **C-Map Chart Files** (right) are commercially available vector chart files which HYPACK® accurately displays on any projection. HYPACK® supports the display of C-Map CM93 Edition 2 charts. Due to changes in C-Map's encryption scheme, we are unable to support Edition 3 C-Maps.



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- | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| 1 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 2 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 3 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 4 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 |
| 5 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 |
| 6 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 |
| 7 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 |
| 8 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 |
| 9 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |

- DGN stores its information in an X-Y coordinate system. The X-Y coordinate systems of your DGN drawing must be based upon the projection system selected in the located on the screen.

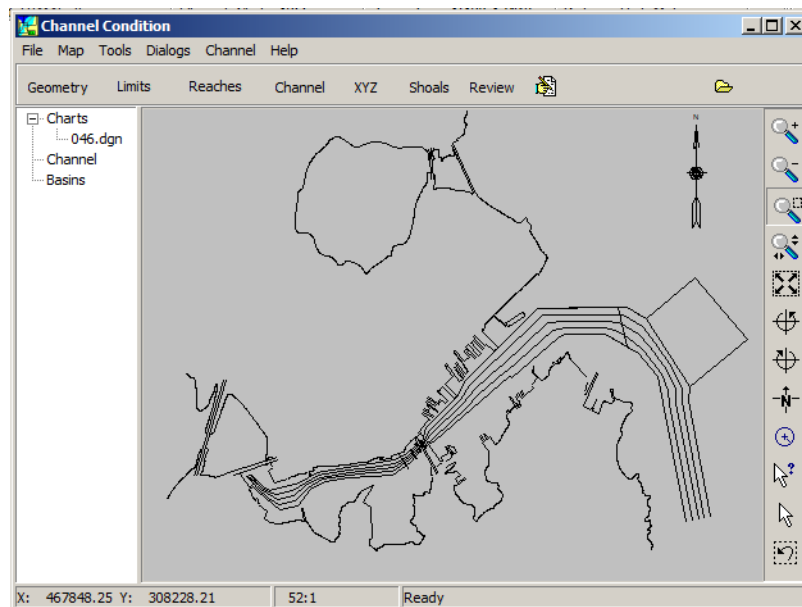
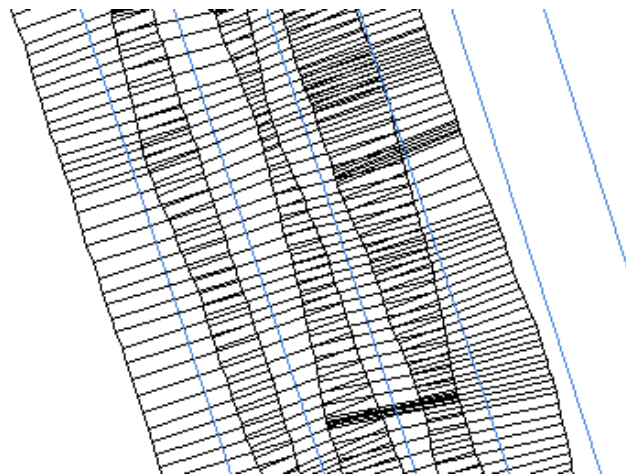


TABLE 1. Comparison of DGN version 7 vs version 8 in HYPACK®

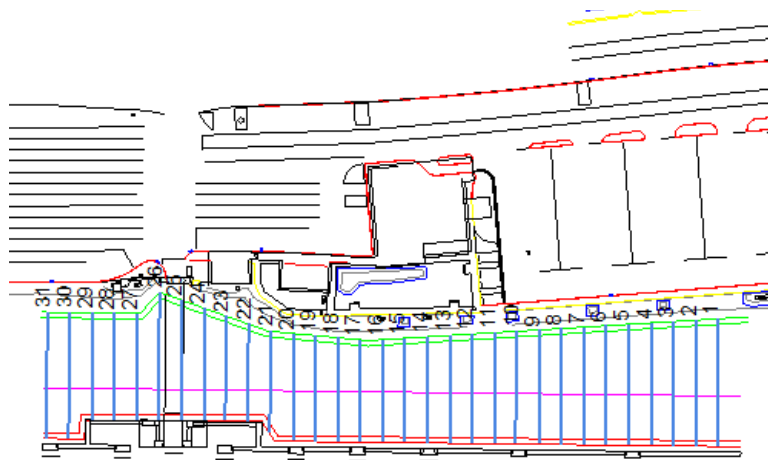
Program	DGN v8	DGN v7
Display in HYPACK® Shell, HYLOT and SURVEY	x	x
Query Objects		x
EXPORT from EXPORT TO CAD		x
Source charts in ENC EDITOR and CHANNEL CONDITION REPORTER		X

- **DGW format** is digitized hydrographic information created in the, now obsolete, HYPACK® CHART and DGW EDITOR programs. The DG2 format replaces the DGW format with improved chart symbols and attributes available to describe your project area.
- **DIG format** was used in early versions of HYPACK® (DOS included) to store digitized hydrographic information. The current Coverage device driver can save the defined coverage area to DIG charts, one per survey line.

FIGURE 2. The “infamous” Halifax DIG Chart (left), Coverage Chart (right).

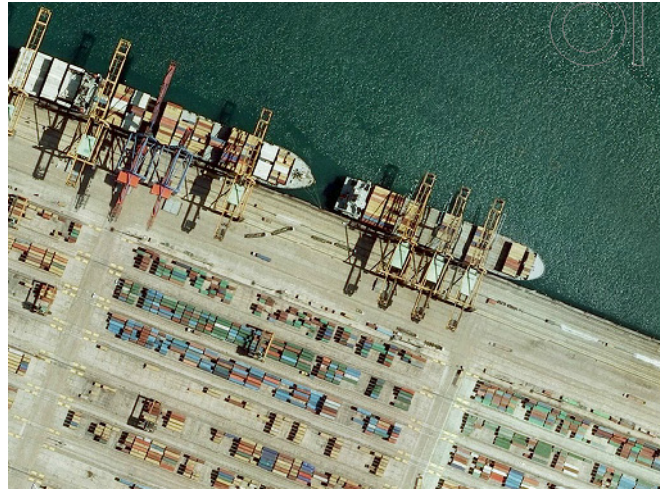


- **DWG Format** a binary file format used for storing two- and three- dimensional design data and metadata. It is the native format for several CAD packages.
- **DXF Format** is a standard vector format that can be output by many different CAD or GIS packages. HYPACK® supports through DXF version 13 format DXF stores its information in an X-Y coordinate system. The X-Y coordinate systems of your DXF drawing must be based upon the projection system selected in the



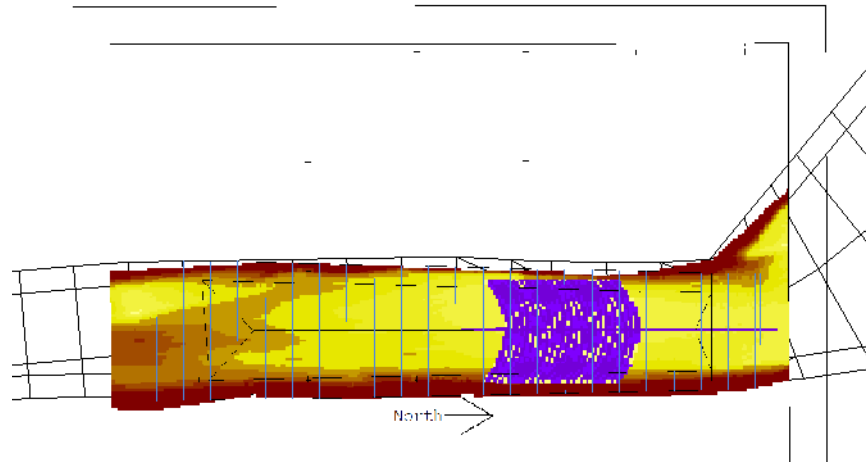
HYPACK® GEODETIC PARAMETERS. Otherwise, your data will not be properly located on the screen.

- **ECW Files:** (right) Enhanced Compressed Wavelet is a compression technology developed by ERDAS to store and transmit large digital images, particularly those generated from satellite and aerial photography systems. ECW is a lossy compression, though the loss is nearly imperceptible.



- **GML Files:** Geography Markup Language is the XML grammar, defined by the Open Geospatial Consortium (OGC), for the encoding of geographic information. The information that can be encoded includes, not only geographic objects and their geometries, but also more abstract notions like coverages and observations. HYPACK® automatically projects GML data if the coordinate reference system code refers to WGS84. Beyond that, we treat the data without conversion. The HYPACK® GML PRESENTATION EDITOR (much like the DG2 EDITOR) provides the means to symbolize a GML file based on the class name of an object and its fundamental primitive type. The EXPORT program can generate GML files from HYPACK data.
- **MIF Files:** The MapInfo MIF format stores vector map information.
- **JPEG2000 and MrSID** charts are high-compression, lossless, raster images. They provide high resolution displays with minimum file size.

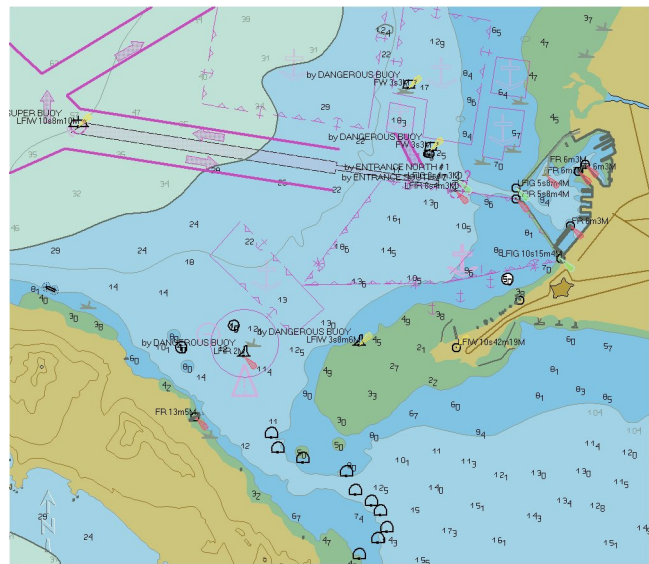
- **PDF Files:**
Georeferenced
Portable Document
Format. In
HYPACK®, you can
generate
georeferenced PDF
charts in HYPLOT,
SIDE SCAN
TARGETING AND
MOSAICKING and
the FINAL
PRODUCT
WIZARD.



- **PNG Files:** If you have an Internet connection, HYPACK® can generate geo-referenced PNG files from satellite images available on Web servers through the Web Maps panel.



- **S57 Version 3 (*.000)** is the International Hydrographic Organization's Transfer Standard for Digital Hydrographic Data. It is an object-oriented format, which contains both spatial and attribute information for chart features. This information is stored in WGS-84. HYPACK® can transform the position to the user's local datum and then draw it correctly on the local projection. Objects are displayed only when you are zoomed in closely enough to avoid excessive clutter in the display.



- **SHP Charts (*.SHP)** are digital charts available through Environmental Research Systems Institute, Inc. (ERSI, Inc.). We currently only support drawing the main chart file, which define points, lines and areas in HYPACK®. (There are no attributes drawn.) In HYPACK®, you can enhance the chart display by assigning colors and textures and line weights.



Note: Be sure these shape files are referenced to your local coordinate system. Files referenced in decimal degrees, will not be correctly positioned in HYPACK®.

TIF Orthophoto (*.TIF): HYPACK® can also draw Orthometric Photo data that is stored in registered TIF format. Each TIF file must have an accompanying *.TFW file which contains the number of pixels (X vs. Y) and origin information for the photo. Both files come from the same source and must be stored together in the same directory. The X-Y information must be on the same datum and projection as specified in the Geodetic Parameters of HYPACK®. TIF files may be:



- Obtained commercially
- Created from HSX format side scan data in the SIDE SCAN MOSAIC program
- Exported from the TIN MODEL program.
- Exported from HYPLOT
- Created in the main HYPACK® program.
- **VPF Vector Product Format** is a vector-based format, developed and used by the U.S. Department of Defense. It contains WGS-84 based chart features that are displayed in the HYPACK® overlay and during the SURVEY program. HYPACK® will transform the WGS-84 coordinates to the local datum before converting it to X-Y coordinates on your projection. VPF files require special routines and are found under the “Draw” menu of HYPACK®. They are not accessed from the Background Files section as the other file types.

