

ENC Display Modes

From the Starpath online course on Electronic Chart Navigation

www.starpath.com/courses

Source is IHO S-52, with editing, formatting, and annotation by Starpath

Base display objects show at all times and cannot be shut off. This is not an adequate display for navigation, but may be useful for routing, weather, or tidal current analysis.

Standard display is considered to meet most needs and should be the default of any ECS. Standard includes all Base objects. ENC objects not included in Standard are called **Other objects**.

Below we highlight a couple Other objects in red, because some of these objects not in the Standard display are still crucial to navigation in some circumstances.

A common option is to offer users an **All Objects display**, plus a **Custom display** that starts with All objects on (Standard + Other), and lets users choose which to shut off for present work.

The navigation program we use in the course (qtVIm) defines a fourth unique option called **Detailed display**, which is the most convenient for most applications using that program. It is an All objects base with several optional filters applied. This is explained at the end of this article.

The gray bars below organize the objects by their *Chart No. 1* categories.

DISPLAY BASE

| | |
|------------|---|
| A, B | CHART FURNITURE |
| 11000 | Information about the Chart Display |
| 11010 | cursor [symbol SY(CURSRA01)] |
| 11020 | na (not assigned) |
| 11030 | scalebar, latitude scale [SY(SCALEB10),SY(SCALEB11)] |
| 11040 | north arrow [SY(NORTHAR1)] |
| 11050 | no data [colour NODTA, AP(NODATA03)], unsurveyed (UNSARE), incompletely surveyed area |
| 11060 | Non-HO data boundary LC(NONHODAT) |
| C, D, E, F | TOPOGRAPHY AND INFRASTRUCTURE |
| 12000 | Land area |
| 12010 | land area (LANDARE) |
| 12200 | Dangers above water |
| 12210 | bridge (BRIDGE), pylon (PYLONS), overhead cable (CBLOHD), conveyor (CONVYR), overhead pipeline (PIPOHD), offshore platform (OFSPLF) |
| 12400 | Shoreline |
| 12410 | coastline (COALNE), ice shelf, glacier (ICEARE), shoreline construction (SLCONS), tie-up wall, dolphin (MORFAC), gate (GATCON, pile (PILPNT), crib, wellhead, ice boom (OBSTRN), floating dock (FLODOC), hulk (HULKES), pontoon (PONTON), oil boom (OILBAR), log boom (LOGPON), flood barrage (DAMCON, CATDAM3) |
| 12420 | dock (DOCARE), lock (LOKBSN), canal (CANALS), river (RIVERS) |
| H, I | HYDROGRAPHY |
| 13000 | Safety Contour |
| 13010 | safety contour (from conditional symbology procedure DEPCNT03) |
| 13030 | depth area (DEPARE), dredged area (DRGARE), |
| J, K, L | SUBSEA FEATURES |
| 14000 | Dangers under water |
| 14010 | isolated underwater dangers in water deeper than the displayed safety contour (rocks, wrecks, obstructions, mooring cables) <i>These must have soundings less than (shallower than) the safety contour.</i> |

End of Base Display Object List

STANDARD DISPLAY

| A, B INFORMATION ABOUT THE CHART DISPLAY | |
|---|---|
| 21000 | Information about the Chart Display |
| 21010 | Unknown object (magenta question mark) |
| 21020 | Generic Object (NEWOBJ01) |
| 21030 | Chart scale boundary, overscale data [AP(OVERSCO1)] |
| 21060 | Place-holder for geographic names (LNDRGN, SEAARE) |
| C, D, E, F NATURAL & MAN-MADE FEATURES, PORT FEATURES | |
| 22000 | Major Coastal Features |
| 22010 | Lake (LAKARE), sloping ground (SLOGRD), slope top (SLOTOP), dyke (DYKCON), causeway (CAUSWY), dam (DAMCON), |
| 22200 | Conspicuous landmarks: |
| 22210 | Radar conspicuous object - (any object with attribute CONRAD 1) |
| 22220 | Visually conspicuous object (any object with attribute CONVIS 1) |
| 22240 | Built up area (BUAARE) |
| H, I DEPTHS, CURRENTS, etc. | |
| 23000 | Depths |
| 23010 | Area of depth less than the safety contour (DIAMON01 pattern) |
| 23030 | Swept area (SWPARE) |
| J, K, L SEABED, OBSTRUCTIONS, PIPELINES | |
| 24000 | Seabed dangers |
| 24010 | Mooring cables (MORFAC, CATMOR6), (CBLSUB, CATCBL6), tunnel on Seabed (TUNNEL, BURDEP=0), sandwaves (SNDWAV) |
| M TRAFFIC ROUTES | |
| 25000 | Routes and Tracks |
| 25010 | Leading line, clearing line (NAVLNE), traffic lane (TSSLPT), deep water route (DWRTPPT), traffic separation area (TSEZNE), traffic separation line (TSELNE), traffic roundabout (TSSRON), traffic crossing (TSSCRS), precautionary area (PRCARE), traffic separation scheme boundary (TSSBND), deep water route centre line (DWRCTCL), two way route part (TWRTPPT), inshore traffic zone (ISTZNE). |
| 25020 | Recommended track (RECTRC), recommended traffic lane (RCTLPT), recommended route centreline (RCRTCL) |
| 25030 | Ferry route (FERYRT) |
| 25040 | Radar line (RADLNE), limit of shore radar (RADRNG) |
| 25060 | Radio calling in point (RDOCAL) |
| N SPECIAL AREAS | |
| 26000 | Restricted and Cautionary Areas |
| 26010 | Restricted area (RESARE) |
| | Submarine transit lane (SUBTLN), military practice area (MIPARE), sea plane landing area (SPLARE), offshore production area (OSPARE) |
| 26050 | Fairway (FAIRWY) |
| 26150 | Caution area (CTNARE) |
| 26200 | Information Areas. Protected Areas |
| 26210 | Fishing ground (FSHGRD), marine farm (MARCUL), Fishing Facility (FSHFAC) |
| 26220 | Anchorage area (ACHARE), anchor berth (ACHBRT), |
| 26240 | Dumping ground (DMPGRD), |
| 26250 | Cargo transshipment (CTSARE), incineration (ICNARE) |
| 26260 | Archipelagic sea lane (ASLXIS, ARCSLN) |

Standard Display Objects continued on the next page

STANDARD DISPLAY *...continued*

| P, Q, R, S BUOYS & BEACONS, LIGHTS, FOG SIGNALS, RADAR | |
|--|---|
| 27000 | Buoys, Beacons, Topmarks, Lights, Fog Signals |
| 27010 | Buoy (BOYxxx), light float (LITFLT), mooring buoy (MORFAC, CATMOR7) |
| 27011 | Light vessel (LITVES) |
| 27020 | Beacon (BCNxxx) |
| 27025 | Daymark (DAYMAR) |
| 27030 | Distance mark (DISMAR) |
| 27040 | Direction of buoyage IALA buoyage regions (M_NSYS) |
| 27050 | topmarks (TOPMAR) - for paper chart symbols |
| 27060 | gridiron (GRIDRN) |
| 27070 | light (LIGHTS) |
| 27080 | fog signal (FOGSIG), retro-reflector (RETRFL) |
| 27200 | Radar |
| 27210 | racon (RTPBCN) |
| 27230 | radar reflector (RADRFL) |
| T, U SERVICES & SMALL CRAFT FACILITIES | |
| 28000 | Services |
| 28010 | pilot boarding point (PILBOP) |
| 28020 | signal station, traffic (SISTAT), sig. stn. warning (SISTAW) |

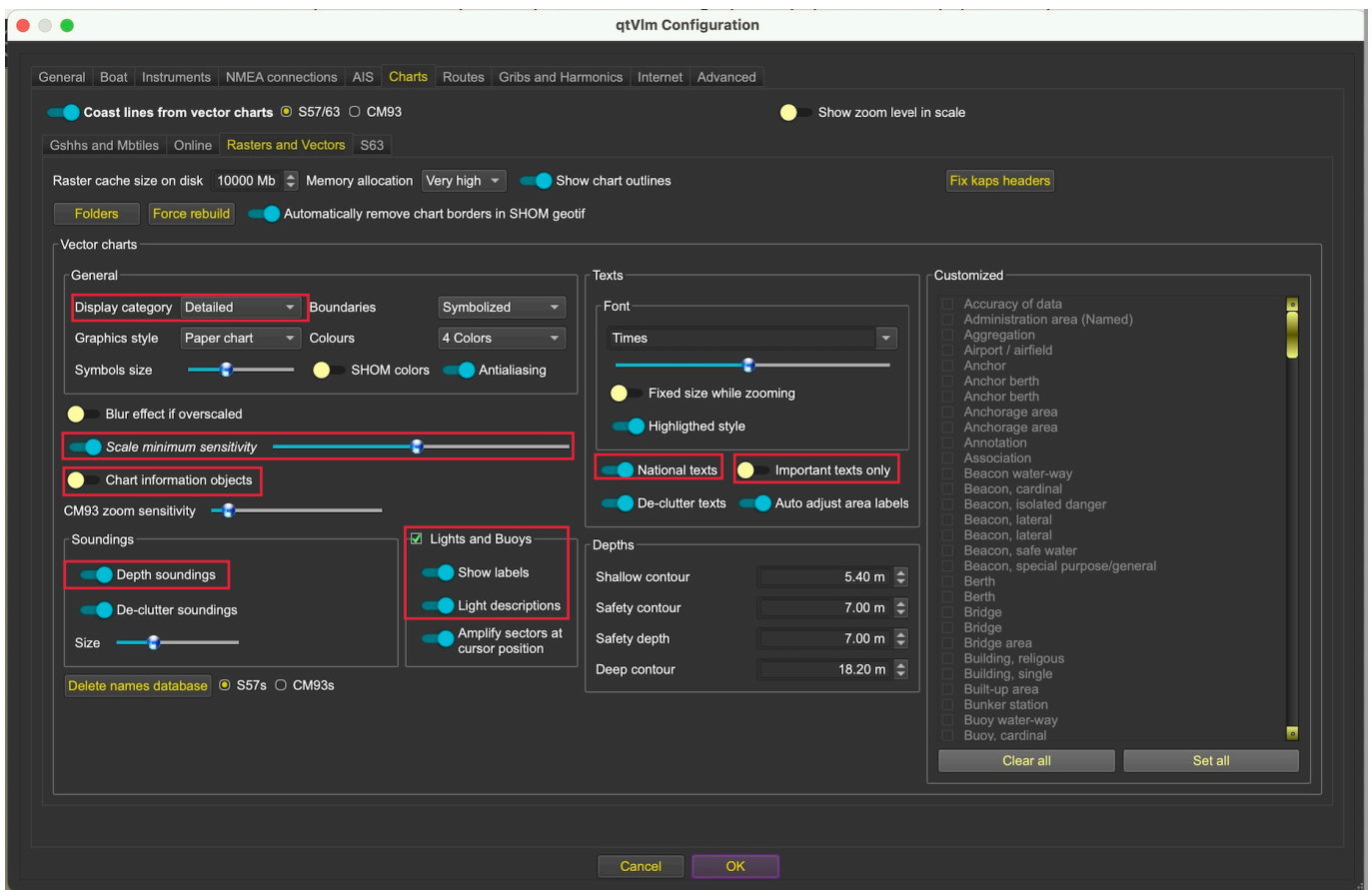
End of Standard Display Object List

OTHER CHART OBJECTS

| A, B INFORMATION ABOUT THE CHART DISPLAY | |
|---|--|
| 31000 | Information about the Chart Display |
| 31010 | accuracy of data (M_ACCY), survey reliability (M_SREL), quality of data (M_QUAL) |
| 31011 | symbol LOWACC01, identifying low accuracy data, applied to the spatial object of point and area wrecks, rocks and obstructions and to point land areas |
| 31020 | nautical publication (M_NPUB) |
| 31030 | Additional Information INFORM,NINFOM |
| 31031 | Additional Documents NTXTDS, TXTDSC, PICREP |
| 31040 | data scale and coverage (M_CSCL, M_COVR) |
| 31080 | magnetic variation (MAGVAR), local magnetic anomaly (LOCMAG) |
| C, D, E, F NATURAL & MAN-MADE FEATURES, PORT FEATURES | |
| 32000 | Natural Features |
| 32010 | dunes , hills (SLOGRD), ridge, clifftop (SLOTOP), contours and elevation (LNDELV) |
| 32030 | trees , vegetation, mangrove (VEGATN), marsh (LNDRGN) |
| 32050 | river (RIVERS) or lake (LAKARE); also rapids (RAPIDS), waterfall (WATFAL) |
| 32070 | tideway (TIDWAY) |
| 32200 | Shore Structures |
| 32220 | any of the following not classified as CONVIS1 (conspicuous): landmark (LNDMRK), building (BUISGL), tank, silo, water tower (SILTNK), wall (FNCLNE), fort (FORSTC) |
| 32240 | airport (AIRARE), runway (RUNWAY) |
| 32250 | railway (RAILWY), road (ROADWY), tunnel (TUNNEL), control point (CTRPNT) |
| 32270 | quarry, refinery, power station, tank farm, wind farm, factory, timber yard (PRDARE) |
| 32400 | Port Features |
| 32410 | harbour type (HRBFAC), customs check point (CHKPNT) [note: "small craft facilities" (SMCFAC) is in group 38210] |
| 32440 | berth number (BERTHS), mooring facility (such as bollard) (MORFAC), , gate (such as lock gate) (GATCON) , dry dock (DRYDOC), crane (CRANES) |
| H, I DEPTHS, CURRENTS ETC | |
| 33000 | Depths, Currents, Tide rips, etc. |
| 33010 | Soundings (SOUNDG) |
| 33020 | depth contours (DEPCNT) other than the safety contour |
| 33021 | label for the safety contour |
| 33022 | label for contours other than the safety contour |
| 33040 | water turbulence (WATTUR) |
| 33050 | tidal information (T_HMON, T_NHMN, T_TIMS) |
| 33060 | current and tidal stream information (CURENT, TS_FEB, TS_PAD, TS_PNH, TS_PRH, TS_TIS) |

| J, K, L SEABED, OBSTRUCTIONS, PIPELINES | |
|---|--|
| 34000 | Seabed Information: rocks, wrecks & obstructions, pipes & cables |
| 34010 | nature of seabed (SBDARE) |
| 34020 | spring (SPRING), sea weed (WEDKLP) |
| 34030 | Pipeline area (PIPARE), cable area (CBLARE) |
| 34050 | rocks (UWTROC), wrecks (WRECKS), obstructions (OBSTRN), which are not a danger to own-ship's navigation (these are all Display Base if a danger to own-ship) [<i>Starpath note: ie deeper than the safety contour</i>] |
| 34051 | non-dangerous rocks (UWTROC), wrecks (WRECKS) and obstructions (OBSTRN) which have a VALSOU attribute and are not a danger to own-ship's navigation (these objects are all Display Base if a danger to own-ship) |
| 34070 | submarine cable (CBLSUB), submarine pipeline (PIPSOL) |
| N SPECIAL AREAS | |
| 36000 | Administrative Areas, (by cursor enquiry) |
| 36010 | continental shelf (COSARE), |
| 36020 | harbour area (HRBARE) free port area (FRPARE), customs zone (CUSZNE) |
| 36040 | fishery zone (FSHZNE) |
| 36050 | <i>contiguous zone (CONZNE), exclusive economic zone (EXEZNE), national territorial area (NATARE), territorial sea (TESARE), territorial sea baseline (STSLNE), administration area (ADMARE)</i> |
| T, U SERVICES & SMALL CRAFT FACILITIES | |
| 38000 | Services |
| 38010 | radar station (RADSTA), radio station (RDOSTA) |
| 38030 | coastguard station (CGUSTA), rescue station (RSCSTA) |
| 38200 | Small craft facilities |
| 38210 | small craft facilities (SMCFAC) |

Below is the qtVlm ENC setup page (opt+cmd+v or alt+ctrl+v) with Detailed selected. The **Detailed display mode** choice includes All ENC objects, but applies the filters marked in red, presenting what is often the best choice for chart view.



The other controls on this page also apply, but they apply regardless of display mode chosen.

A couple details to keep in mind are:

- (1) *Chart information objects* and *Important text only* are best left off in all modes; the former clutters the screen (unless you need chart accuracy data) and the latter removes essentially all chart labels.
- (2) The All option overrides your choice of Scale minimum (SCAMIN) sensitivity, shutting it off for all scales.
- (3) Soundings and depth contours are Other objects category but you can turn them on or off here for any display mode. They each have a SCAMIN. The exception is the safety contour that always shows in every mode.