AVCS

ADMIRALTY
Vector Chart Service

V4.2

User Guide

UK Hydrographic
Office

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V4.2

Contents

Overview

ADMIRALTY Vector Chart Service (AVCS) is produced and distributed according to well-defined international standards.

This guide provides generic information to assist in managing and maintaining your AVCS holdings.

This guide should be used in conjunction with the User Manual supplied by your ECDIS manufacturer.

AVCS brings together official Electronic Navigational Charts (ENC) from national Hydrographic offices around the world. It includes ENC coverage produced by UKHO in co-operation with Foreign Governments to provide comprehensive worldwide coverage.

Quality

AVCS meets customer requirements for a comprehensive, world-wide, fully carriage compliant electronic chart service. AVCS continues to develop in response to customer feedback.

UKHO has a programme of assessment by its professional cartographers, where the content of the ENC is compared to relevant paper charts. Any navigationally significant differences are communicated to users of AVCS through ADMIRALTY Information Overlay (AIO). No other electronic chart service offers this level of reassurance.

Carriage compliance

AVCS contains Official ENC data that meets Safety of Life at Sea (SOLAS) Carriage Requirements for use within Electronic Chart Display and Information Systems (ECDIS).

Licensing

The ENCs in AVCS are provided under a licence agreement that allows their use for defined periods of time. AVCS Folios and ENC Units may be added to an AVCS licence at any time for periods of 3, 6, 9 or 12 months (where data supply agreements allow). This offers maximum choice and the flexibility to match your chart holdings to your operational patterns.

SENC Services

When they are loaded into the ECDIS, ENCs are converted to the system's own proprietary format, known as System ENC (SENC). To allow them to load more efficiently, some service providers convert AVCS ENCs to SENC ashore, then send them to the vessel, usually by download.

AVCS SENC services carry full ADMIRALTY assurance and accreditation.

Pay as you Sail (PAYS)

PAYS subscriptions provide your vessel with permits for the majority of the AVCS portfolio, so they are available for voyage planning. Where the Producer allows their ENCs to be included in the PAYS Service you avoid having to purchase them individually. You are only charged for their use when your vessel tracks across the coverage of each ENC.

The ENC data must still be loaded onto your ECDIS either manually or automatically.

Further information

NP231 ADMIRALTY Guide to the Practical Use of ENCs is a comprehensive guide to the ENC portrayal, standards and regulations.

The UKHO website, admiralty.co.uk, has more information and links to resources for use with AVCS.

Getting started with AVCS

This start-up guide is designed to help you to load and maintain your AVCS data easily and quickly. It describes the basic steps necessary to use AVCS in any ECDIS. The functionality for loading and maintaining AVCS will differ from one ECDIS to another, so this guide should be used in conjunction with the User Manual supplied by your ECDIS manufacturer.

AVCS contains official ENCs issued by Government Hydrographic Offices. It is designed to be used in conjunction with a type-approved ECDIS to meet the requirements of SOLAS Chapter V.

Before you start

1. Your ADMIRALTY Chart Agent will have provided the following materials:

    > AVCS data on DVDs, media drives or other means of obtaining base ENCs and their updates.
    > Schedule A (a document listing the Folios and Units that you have licensed).
    > A set of ENC Permit files (PERMIT.TXT and ENC.PMT) for each ECDIS equipment.
    > AVCS Certificate (a document showing your vessel and licence details).
    > ADMIRALTY Information Overlay (AIO) data (recommended).

2. Referring to the User Guide for your ECDIS, remove any existing ENCs and if possible, any installed permits.

    You are now ready to load AVCS onto your ECDIS.

Installing permits and data

Specific instructions for some common models of ECDIS are available at admiralty.co.uk/AVCS.

Videos are also available at youtube.com/user/AdmiraltyTV

1. Before loading AVCS ENCs, the ENC Permits must be installed on the system. The permits consist of two files for each ECDIS: ENC.PMT and PERMITS.TXT.

    Install your permits, referring to your ECDIS User Guide.

    AVCS customers with multiple ECDIS on board should be careful to load the correct permits into the corresponding system.

    Permit sets are labelled MASTER, BACKUP, RESERVE 1, 2 and 3.

    The International Hydrographic Office (IHO) Public Key, IHO.CRT, may need to be updated on older ECDIS. Refer to your ECDIS manual for more details.

2. Load ENCs from media drive or discs. Each disc contains ENCs from the producers listed on the label. Note that some producers (such as the United Kingdom) produce data worldwide so the Base discs do not directly correspond to a geographical area.

    It is only necessary to load the discs that contain licensed ENCs, as listed in the Schedule A. The ECDIS will manage the loading of all ENC cells based on the installed ENC Permits.

3. Load the ADMIRALTY Information Overlay (if supplied), which provides additional information for passage planning. The Overlay contains Temporary & Preliminary Notices to Mariners (T&P NMs) for paper charts and ENC Preliminary Notices to Mariners (EP NMs), which highlight navigationally significant differences between ENCs and ADMIRALTY paper charts.

A permit for AIO is provided free of charge with AVCS. If it does not display, please ask your ADMIRALTY Chart Agent to check that it has been added to your licence and that your ECDIS has been enabled.

Maintaining your holdings

1. A new set of ENC Permits will be supplied by your ADMIRALTY Chart Agent whenever an ENC has been added or removed from your licence. These should be installed on the ECDIS when they are received, before loading any new AVCS discs.

   You may also receive an updated Schedule A.

2. Your ADMIRALTY Chart Agent will supply you with weekly AVCS update data.

   Alternatively, you may use your ECDIS or other software to request and download ENC updates.

   New AVCS DVDs and an AIO CD are issued every week, and the data is cumulative. To update the ECDIS, just load the ENCs from the latest AVCS discs that you hold. Alternatively, you may only receive the updated data for the ENCs that you hold.

3. Periodically, ENCs are cancelled as part of the continuous maintenance of ENC coverage worldwide.

   It is strongly recommended that you choose to delete any cancelled ENCs from the ECDIS otherwise it may display out of date data in preference to more recent ENCs.

Readme file

AVCS discs and downloaded exchange sets contain a 'README.TXT' file which includes important safety information that should be read before using the service and checked on a weekly basis.

The latest README.TXT file can also be viewed in on the Support tab at admiralty.co.uk/avcs.

Other important information

Information about general cautions when using ENCs within ECDIS is contained in the document "Important information for AVCS users" which can be found on the Support tab at admiralty.co.uk/avcs and the INFO folder on AVCS discs.

Updates applied to the ECDIS may have a navigational impact on an area covered by a stored route. It is important to check the effect of any updates on these routes prior to their use.

Working with AVCS

Downloaded data

Your ADMIRALTY Chart Agent may provide you with the capability to deliver the ENCs and updates that you need over the internet or by email. This has the advantage of allowing you to keep the ENCs on your ECDIS up to date and avoid the delay when discs are delivered by post.

Exchange set

ENC data, catalogues and metadata files are organised in an internationally recognised standard format that is recognised by the ECDIS. A complete collection is known as an 'exchange set' and will normally be named "V01X01".

Large datasets, such as AVCS DVDs, may be supplied in a different Large Media Format, which is named "M01X01".

ENC data on disc

The AVCS DVD service comprises all the base and update data and is distributed on two discs every week. This simplifies the work for the ECDIS in reading the data into the system. The ENCs are organised into nine folders or Volumes on the disc. The DVDs are named "M01X01".

If you receive multiple update discs on board at the same time, you only need to use the most recent one because they are cumulative.

AVCS permits

Each permit is unique and is the method which gives the user access to the required ENCs.

The ENC Permits are supplied in a zipped file and the contents of this file will depend on the user's bridge configuration, as each AVCS licence allows for use on up to five ECDIS. When extracted, one or more set of permit files

(*PERMIT.TXT* and *ENC.PMT*) will be copied automatically into folder(s) named MASTER, BACKUP, RESERVE1, RESERVE2 and RESERVE3 depending on the number of ECDIS configured on the bridge.

The permits may be supplied on physical media, separately by email, downloaded over the internet, or directly from back of bridge software applications. The contents should be extracted to a file location that is capable of being read by the ECDIS system.

The 'Schedule A'

The Schedule A document informs the user which Volumes on the DVDs are required to install the licensed ENCs. A sample of the information contained in the Schedule A is provided below. Note that 'volumes' in the Schedule A are currently still labelled as 'Home CD'

If the user does NOT have a copy of the Schedule A they can refer to the media.txt file at the root level of the AVCS disc to determine which Volume contains the data for a given Producer Code. If in any doubt, both AVCS DVDs must be installed to ensure that all licensed ENCs are loaded on the ECDIS.

Cancelled ENCs

Periodically, ENCs are cancelled as part of the continuous maintenance of ENC coverage worldwide. If possible, cancelled ENCs are replaced with alternative or new coverage so there is no loss of coverage in your ECDIS.

Full Schedule A

AVCS ENC cells on Licence

Unit No	Cell No	Title	Home CD	AVCS Update	Expiry Date
GB51859C	GB51859C	Port of Bristol - City Docks	AVCS Base 3	N/A	30.04.18
PT111101	PT111101	Continental Portugal Açores and	AVCS Base 4	N/A	31.03.18
UA3AD427	UA3AD427	Sea of Azov. Kerchenska Strait.	AVCS Base 4	N/A	31.03.18
UA4CC883	UA4CC883	Kerchenska Strait. Part 1	AVCS Base 4	N/A	31.03.18
UA4CC884	UA4CC884	Kerchenska Strait. Part 2	AVCS Base 4	N/A	31.03.18

Example of part of a vessel's Schedule A

It is strongly recommended that you choose to delete any cancelled ENCs from the SENC as failure to do so may result in the ECDIS displaying out of date ENCs in preference to more up to date data.

Adding ENC coverage

Additional AVCS Folios and Units may be purchased during the subscription period through your chosen ADMIRALTY Chart Agent.

Once your order has been approved by your ADMIRALTY Chart Agent, you will receive new ENC Permits to 'unlock' the newly added data. These permit files are cumulative so as well as unlocking the new coverage they will also hold the permits necessary to unlock all your existing coverage.

You can use software applications and some ECDIS to order new permits and data, then have them delivered direct to your vessel.

ADMIRALTY Information Overlay (AIO)

The AIO is a worldwide digital dataset that is designed to be displayed over ENCs in ECDIS and other chart display systems to provide additional information during passage planning. The Overlay displays ADMIRALTY paper chart Temporary & Preliminary Notices to Mariners (T&P NMs) where temporary information has not been encoded by the producer into the underlying ENC.

The AIO also draws attention to areas where differences between ENCs and paper charts may affect the passage plan.

T&P NMs

ADMIRALTY paper chart T&P NMs are not displayed where producers have stated that the information is already available in their ENCs. AIO also does not include T&Ps that are only relevant to the paper chart.

Each NM is displayed as a simple polygon with a hatched fill which indicates the area affected by the NM. Each polygon carries the same NM number that is used in the ADMIRALTY Weekly Bulletin.

The full text of the NM is included as an associated text file which can be displayed by selecting the 'Temporary Notice to Mariners' or 'Preliminary Notice to Mariners' feature in the ECDIS Pick Report. Any associated diagrams can also be viewed through the Pick Report.

AIO may not contain all T&P NMs issued by the ENC producer. There may be a time delay between the publication or cancellation of national T&P NMs and the publication or removal of the equivalent ADMIRALTY T&P NMs.

A list of ENC producers whose policy is to include T&P NM information in their ENCs can be found at admiralty.co.uk/AVCS and in the INFO folder on all AVCS and AIO discs.

Note: Official ENCs remain the primary source of information for navigation at all times.

EP NMs

ENC Preliminary (EP) NMs highlight navigationally significant differences between ENCs and ADMIRALTY paper charts. These NMs are displayed in the same way as T&P NMs. Each NM is allocated a unique EP NM number.

The full text of the NM can be viewed in the ECDIS Pick Report. Where additional information is needed to explain the NM an associated picture file displays an image showing the ENC superimposed over the current paper chart information.

Compatibility

The Overlay can be displayed on AIO-compatible ECDIS equipment as well as some software applications. A list of AIO-compatible ECDIS can be found on the Support tab at admiralty.co.uk/AVCS, or consult your supplier.

The Overlay data is held on a single CD which is installed and updated in the same way as ENCs. The AIO permit GB800001 is free of charge for AVCS users and can be added to your licence. Please contact your ADMIRALTY Chart Agent if you wish to use the Overlay or cannot view on your ECDIS.

Further information can be found in the AIO User Guide, which is available on the AIO disc and at admiralty.co.uk/avcs.

Troubleshooting

IHO S-58 Standard - ENC Validation

The majority of the ENC checks defined in the IHO Standard S-58 are intended for use in the ENC validation software that is used by Hydrographic Offices or Regional ENC Coordinating Centres. These were not intended to be used in ECDIS. However, some system manufacturers have incorporated some, or all the ENC validation checks in their ECDIS software. As a result, you may see misleading messages indicating that officially produced and released ENC data contains errors, when it does not. In some cases, official ENC data may even being reported as not suitable for navigational use.

You should only report these errors where an ENC has failed to load. These are normally identified by the ECDIS as a fatal error or ENC failed import. UKHO will seek to resolve these cases with the ENC producer.

Incorrect chart information

According to IHO rules, each producer is responsible for producing the ENCs in their own waters. As a result, UKHO is unable correct any errors that are reported by users, except for GB ENCs. However, we will pass on any user feedback to the Producer Nation with the aim of resolving any issues.

Security Scheme Errors (SSE)

As part of the IHO Standard S-63 Data Protection Scheme, ECDIS have to include standard error and warning messages called Security Scheme Errors (SSE).

The table below shows a list of the SSE codes:

Error messages likely to be displayed in an ECDIS	
SSE 03	Certificate is invalid (Authentication failure)
SSE 04	Format of Certificate is incorrect (Authentication failure)
SSE 05	SA Digital Certificate file is not available (Authentication failure)
SSE 06	SA Digital Certificate is invalid (Authentication failure)
SSE 07	Certificate file is not available (Authentication failure)
SSE 08	Format of Private Key is incorrect (Authentication failure)
SSE 09	Signature is invalid (Authentication failure)
SSE 10	Files are different (check after decryption)
SSE 11	Cell Permit file not found (Decryption failure)
SSE 12	Cell Permit format is incorrect (Decryption failure)
SSE 13	Cell Permit is invalid (checksum [CRC] is incorrect / decryption failure)
SSE 14	Incorrect system date
SSE 15	Subscription licence has expired
SSE 16	ENC CRC value is incorrect

> Codes 03 to 09 relate to the ECDIS check of the authenticity of the discs being loaded
> Codes 11 to 13 relate to the permits supplied
> Codes 14 and 15 relate to checks on licence validity
> Codes 10 and 16 relate to checks carried out on the consistency of the ENC data

Conversion errors

When ENCs are loaded into an ECDIS they are converted from the standard S57 format they are supplied into the systems specific format of the ECDIS being used (the System ENC – SENC).

Data being supplied within AVCS has been validated to very high standards and the number of conversion errors being reported should be low.

When loading ENCs the ECDIS could report the following error conditions:

1. The ECDIS is unable to load the ENC or Update at all, or loads and reports an error. This is not common. If the problem persists, please contact your ADMIRALTY Chart Agent.

2. The ECDIS loads the ENC or Update and reports a warning. This is quite common on some ECDIS systems and reflects minor differences in the way it interprets the S-57 standard. We are not aware of any evidence that the correct operation of the ENC in the ECDIS is affected in these cases.

Technical support

You will receive the most effective support if you address your initial query to the correct organisation.

Problem	Contact
Hardware problems: difficulties with the keyboard, mouse, display or main system console, CD or DVD drive.	ECDIS Manufacturer
Software problems: difficulties with configuring or using the ECDIS system software, interfacing problems.	
Chart installation problems: problems with installing certificates, permits and AVCS ENCs, standard error codes displayed.	ADMIRALTY Chart Agent
Chart content problems: display anomalies or mismatched data displays.	

When reporting a chart related problem, it is useful if you can provide the following details:

> Licence Number
> Vessel Name
> ECDIS/Software Manufacturer
> Details of error message – Including 'SSE' error code
> Screen shot(s) of error
> Details of Base Discs or DVD used (date)
> Details of Update CD used (date)
> Details of permits used (date)
> Details of Cell number(s) errors apply to
> Have there been any configuration changes to computers
> Details of User Permit(s) and PIN(s)

Emergency chart permits

In certain circumstances it may be necessary for a vessel to get access to an ENC at very short notice. Your ADMIRALTY Chart Agent has access to the UKHO 24-hour online ordering system and can very quickly deliver new permits to you by email or internet. Also, some ECDIS or bridge software allow you to order and download new permits yourself.

If these options are not available to you and you need new permits **due to a medical or safety emergency only,** individual AVCS ENC Permits can be obtained from the UKHO at any time. Please quote Vessel Name, ECDIS User Permit Number, required ENC(s) and reason for request.

These permits can be transmitted direct to the vessel by email, or simply by reading the characters out over the telephone.

About us

The UK Hydrographic Office is a leading provider of global marine geospatial data.

We help to inform maritime decision-making for navigation, infrastructure development and the management of marine resources.

Serving users worldwide

Our world-leading location based information is available through ADMIRALTY Maritime Data Solutions to users worldwide.

For more information, contact our global network of ADMIRALTY Chart Agents. Alternatively, contact our customer service team.

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