Using

The Admiralty Vector Chart Service

With

The Japan Radio Company (JRC) ECDIS

This guide is based on the JAN-901B Series ECDIS (ECp01.01, ©2008)
NDC- 2000 ECS (ECp v 01.05.00.05 ©2007)

Admiralty Vector Chart Service

AVCS

ADMIRALTY
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Table of Contents

Introduction

Conventions Used in this Document

Italic font is used for:

- program and component names

Boldface is used for:

- chapter and section headlines
- important notes

Courier New font is used for:

- any text typed by the user
- file content and names

The note box displays important information which should not be ignored.

Select from the Menu Bar: →

- Indicates the menu options to select a particular ECDIS function.

Please note:

- Logos incorporating the Admiralty ⌐ are trademarks of the UKHO.
- Screen layouts illustrated in this user guide may differ from the actual layout that you see.
- The information described in this user guide may be subject to change without notice.
- Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.

Purpose of this Guide

ENCs contained within the Admiralty Vector Chart Service (AVCS) are produced and distributed according to well-defined international standards. However each ECDIS manufacturer has implemented the ENC import module differently. Users who are experienced in operating a particular model of ECDIS may require additional supporting information when managing AVCS ENCs on ECDIS equipment that they are not as familiar with. The purpose of this guide is to provide equipment-specific information to assist users in managing their AVCS ENC holdings.

This guide has been produced to take users through the installation of AVCS on ECDIS or ECS equipment. The actual instructions and screenshots are based on the version of the ECDIS installed at the UKHO as detailed on the front cover. However the method of managing AVCS and other digital data, e.g. ARCS, is common across equipment supplied from the same manufacturer, i.e. different versions and models. There may be minor differences between certain models and these will be highlighted in this guide where known.

AVCS User Guides are available for other ECDIS equipment; please visit www.ukho.gov.uk/AVCS to download a guide suitable for your ECDIS equipment.

This guide should be read in conjunction with the AVCS User Guide, as well as the ECDIS Operators Manual or other documentation as supplied by the equipment manufacturer.

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Getting Started

New AVCS Customers

Your Admiralty Chart Agent will provide you with the following materials when you subscribe to AVCS for the first time:

AVCS Start-Up Pack

- AVCS Quick Start Guide;
- AVCS User Guide;
- AVCS Base Discs (a set of CDs or a DVD labelled 'Base');
- AVCS Update Disc (a CD labelled 'Update')[1];
- Admiralty Utilities installation CD;
- Admiralty Digital Data Services End User Licence Agreement (EULA).

AVCS Licence

This may be supplied with the *AVCS Start-Up Pack* on hard media, e.g. floppy, CD, etc. or separately by e-mail. The initial licence pack will contain the following:

- A "*Schedule A*", this is a PDF document listing the Folios and ENC Units that the user is licensed for. It also lists the "Home CD" where the licensed ENCs are held. This is particularly useful as it prevents unnecessary loading of those CDs that do not contain any licensed ENCs.
- A set of *ENC Permit* files (PERMIT.TXT and ENC.PMT) for each ECDIS installation.
- *AVCS Certificate* (a PDF document showing your vessel and license details).

> For an initial installation, or a reinstallation of AVCS on a purged ECDIS you will need all of the above materials. If you are applying a weekly update, you will only need the latest AVCS update disc and possibly a new ENC Permit file. If you want to install additional coverage on the ECDIS you will need the latest base disc(s), the latest update CD and a new set of ENC Permit files.

AVCS Material Replacement

Most Admiralty Chart Agents will have a stock of AVCS Start-up packs, so base and update discs can be obtained from them. Usually digital files, such as ENC Permits, are sent as attachments to emails and these may be stored in your email system's inbox. If not, your Chart Agent will often hold copies of any permit files previously sent to you.

Pre-installation Checks

Data Cleansing

New AVCS customers who had previously subscribed to other ENC services are <u>strongly</u> recommended to remove (purge) all ENC Permits and ENCs from the system before installing AVCS. There is a good reason for doing this as previously installed ENCs may become <u>out of date</u> if they are not licensed in AVCS. If the system is not purged redundant ENCs may remain in the system database (SENC) and be available for use, even if the previous license has expired. However unlicensed ENCs cannot be updated and the user may be unaware of this if inadvertently navigating on one. Instructions on how to remove ENC Permits and ENCs are described later in the Data Cleansing section.

Public Key – Is the Correct File Installed?

The ECDIS will not install ENCs from AVCS unless the correct Public Key is installed. If the correct Public Key is not installed the ECDIS will report an *Authentication Failure.*

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[1] Currently an *AVCS Update CD* will not be available if the customer joins AVCS coincidentally with a re-issue of the *AVCS Base CDs*. This may change in the future with the incremental issue of the AVCS bases.

Background

The ECDIS authenticates the source and integrity of encrypted ENCs from Service Providers against a pre-installed *Public Key*. The *Public Key* can be formatted in one of two ways, either an ASCII text file *(.PUB)* or an *X509 Certificate (.CRT)*. Newer ECDIS (manufactured since 2003) often come with the IHO.PUB and/or IHO.CRT pre-installed as the IHO are the Scheme Administrator (SA) for the S-63 ENC Data Protection Scheme. The UKHO is a certified subscriber to this scheme. However, for historical reasons, it does not use the *IHO Public Key*. AVCS ENCs are currently authenticated against the *PRIMAR Public Key*. The reason for this being that many legacy ECDIS are configured to authenticate against this Public Key. The UKHO will migrate to the IHO public key in the future when it is considered safe to do so without causing any inconvenience to existing users.

Check the Public Key

Before installing AVCS ENCs, the user must check that the correct Public Key is installed on the system. The method of managing and viewing these will vary between different makes or versions of ECDIS. If the PRIMAR *Public* Key is not present on the system then it will have to be installed before AVCS ENCs can be loaded. See the Check the Public Key section below for the method of managing the Public Key on this particular ECDIS.

ECDIS Authentication Warning

New build ECDIS, type-approved against the latest IMO ECDIS Performance Standards (Jan 2009), will report a warning when installing AVCS. The message reads as follows:

> *SSE26 - This ENC is not authenticated by the IHO acting as the Scheme Administrator*

Users should acknowledge these, if prompted to do so, but should not be alarmed as the source and integrity of the ENCs are authenticated correctly against the *PRIMAR Public Key*. Other errors or warnings relating to the validity of the public key or certificate should be reported, see the section on **Getting Help**.

Emergencies

In certain circumstances it may be necessary for a vessel to get access to an AVCS ENC at very short notice, for instance, if having to divert from the planned route in a medical emergency. See **Emergency Chart Permit Generation** in the **Getting Help** section.

JRC - Data Management

The Chart Portfolio Module

All AVCS chart operations are carried out from within the *Chart Portfolio* module.

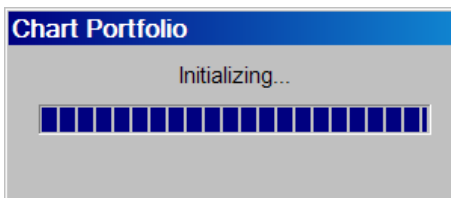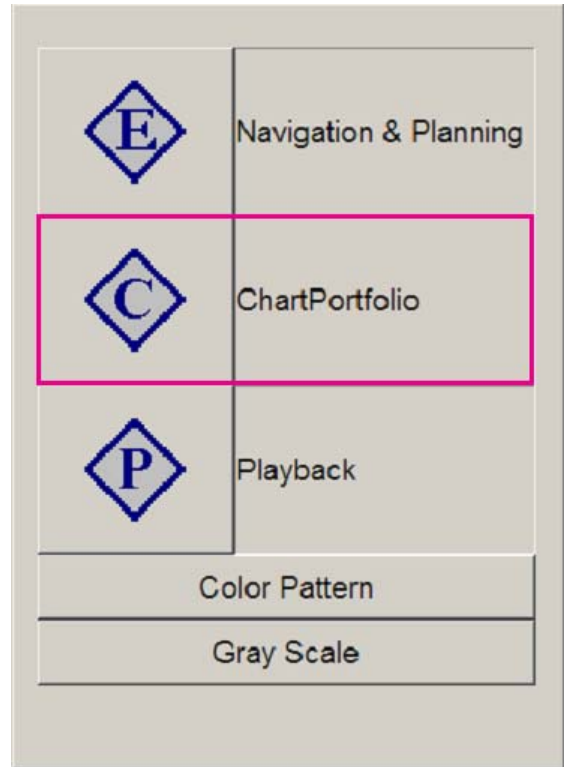### Accessing the *Chart Portfolio* module

The JRC system makes a clear distinction between *Data Management* and *Navigation and Planning*. All AVCS and ARCS data is managed from within the *Chart Portfolio* module.

It is recommended that there is no AVCS CD in the drive before clicking on the *ChartPortfolio* option. Otherwise the application will immediately start reading the disc, which can take some time.

This module is accessed from the applications window across which is displayed automatically when the ECDIS is turned on. Click on the *ChartPortfolio* button to activate.

Note, if the ECDIS is already running in *Navigation & Planning* or *Playback* modes, activate the menu by moving the cursor to the top of the display and when it is active either type 0 (zero), or select (0) Exit and then *Yes* at the subsequent confirmation box.

The following message boxes will be displayed while the application is loaded.

The *Chart Portfolio* message box will initialise, this is indicated by progress bars that will gradually scroll across. During the initialisation process the application tries to locate the source media. If no media is found the following *Sort chart* confirmation box will be displayed:
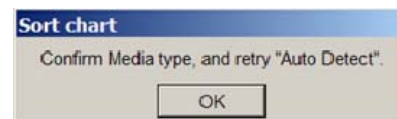
Click *OK* and the following *Attention* message box may be displayed depending on the version of the software in use. Older versions of the JRC ECDIS do not display this box.
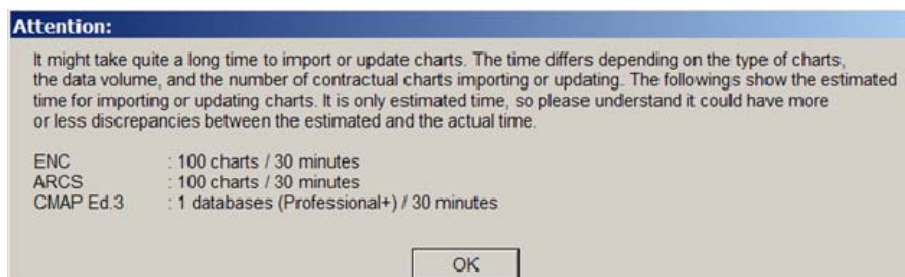
If the above message box is displayed click *OK*, if not the *Ecdis Chart Portfolio* window will be displayed as shown below. This is the window where AVCS ENC permits, ENC cells and Public Keys are installed and managed.
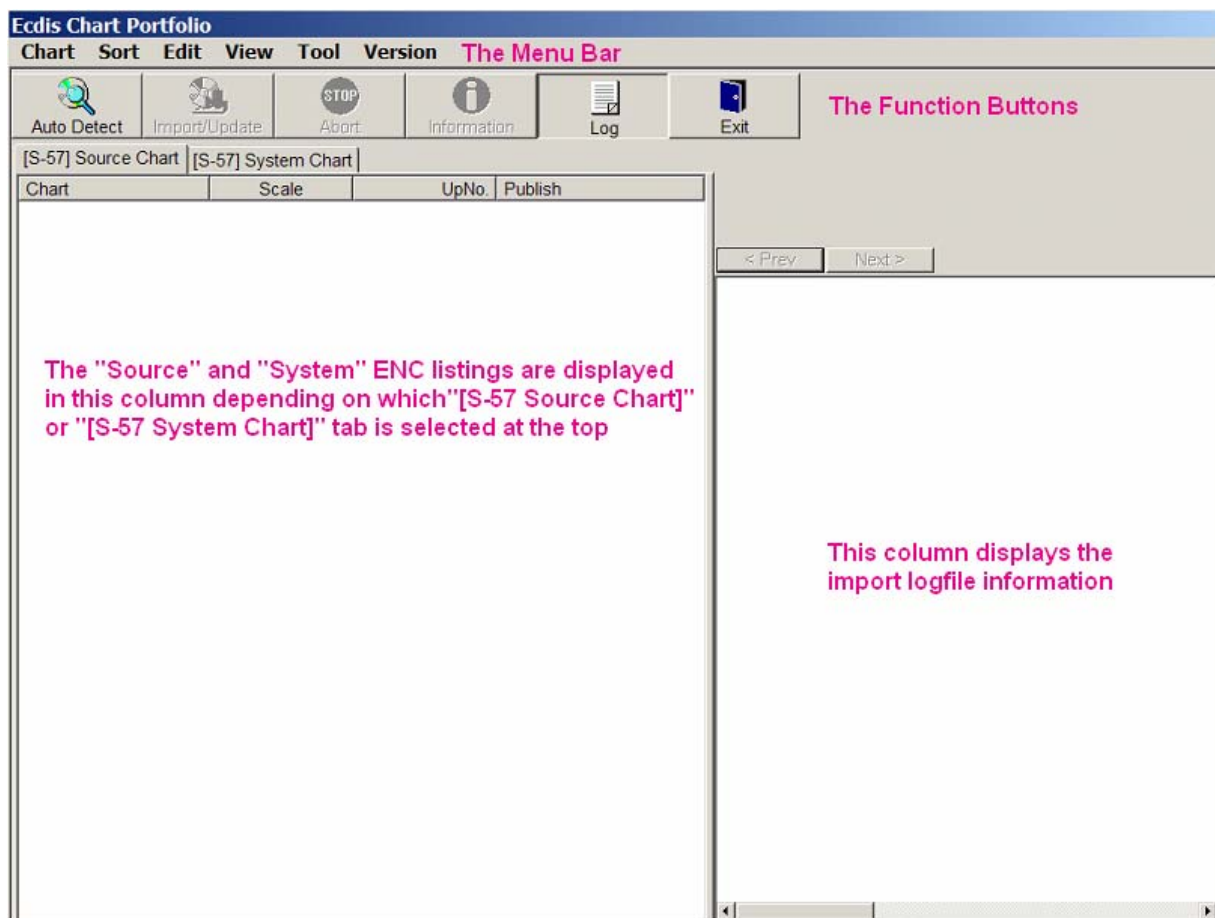
The *Ecdis Chart Portfolio* window has several elements to it as follows:

1. The *Menu bar* where the system settings and display parameters can be set up.
2. The *Function Buttons* that allow the user to carry out the import of ENCs and view information relating to them. Also the *Exit* button is used to terminate the application.
3. The *Source* and *System* column which list the details of ENCs available for import or currently installed in the system. This facility can also be used in conjunction with the *Information* button to obtain more details in respect of the status of available ENCs and those installed on the system.
4. The *Log File* column on the right which provides the user with a log of information during the import of ENCs.
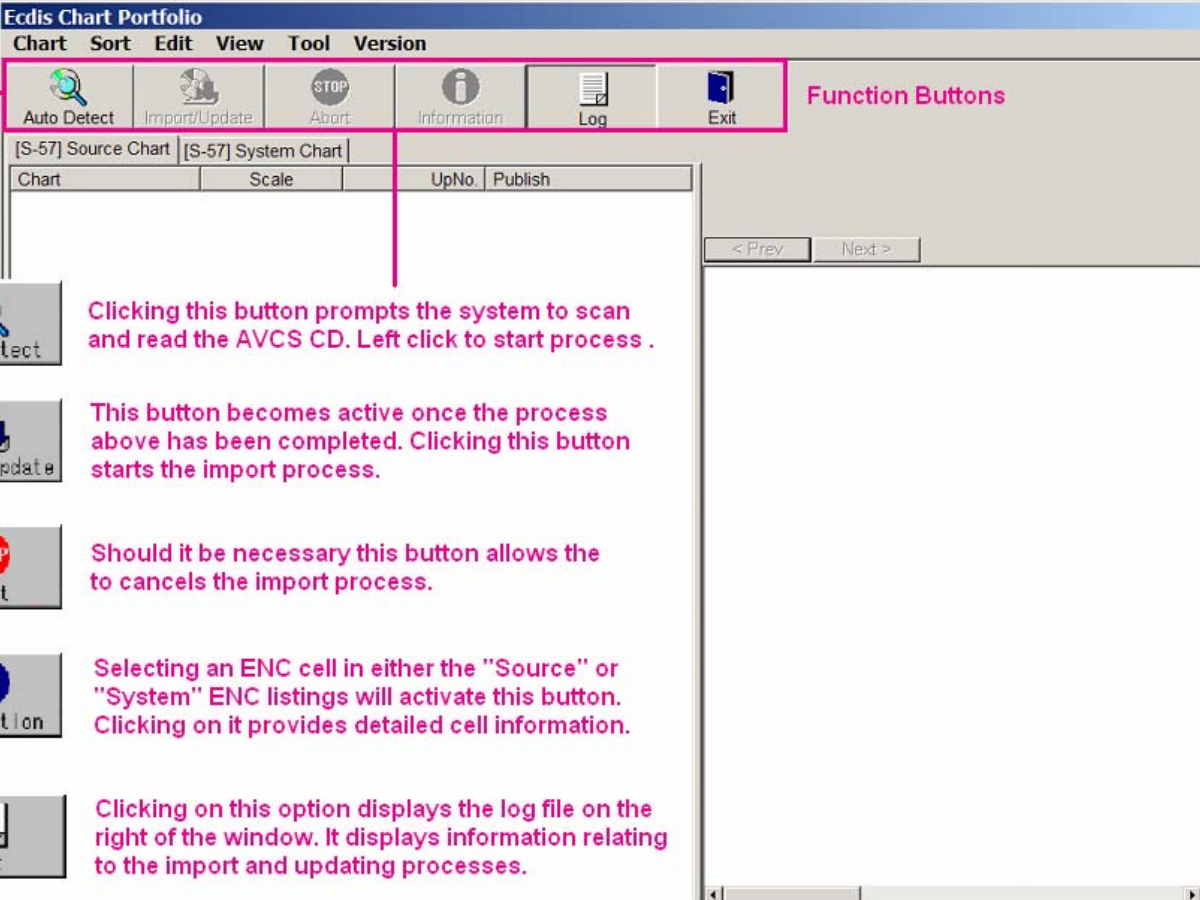
The *Menu Bar*

Only those functions available on *the Menu* bar relevant to the loading AVCS ENCs are described:

- The *Sort* option allows the user to select the chart format being worked with. For AVCS the user should check that the *S-57* option is ticked (✓).
- The *Edit* option allows the user to highlight installed ENCs and delete them.
- The *Tools*, *Option* utility allows the user to manage the ENC permits, public keys and also the source location where AVCS ENC CD can be loaded from.

All the above options and their functionality will be discussed in more detail later in this guide.

The *Function* Buttons

Clicking this button prompts the system to scan and read the AVCS CD. Left click to start process .

This button becomes active once the process above has been completed. Clicking this button starts the import process.

Should it be necessary this button allows the to cancels the import process.

Selecting an ENC cell in either the "Source" or "System" ENC listings will activate this button. Clicking on it provides detailed cell information.

Clicking on this option displays the log file on the right of the window. It displays information relating to the import and updating processes.

Clicking this button exits the PortFolio Manager. Users will be prompted to confirm the operation.

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Preliminary System Checks

General

The Pre-installation Checks section identifies some pre-installation checks that the user should carry out before loading AVCS ENCs into the system. These checks are primarily aimed at systems which had ENCs from another service installed prior to converting to AVCS. It is also prudent to carry out the following checks when installing AVCS on newly delivered systems.

Data Cleansing

The Data Cleansing section above highlights the need for new AVCS customers, who had previously subscribed to other ENC services, to remove (purge) all *ENC Permits* and ENCs from the system before installing AVCS. It also outlines the reasoning behind this recommendation, the following section outlines the method of carrying this out on this ECDIS.
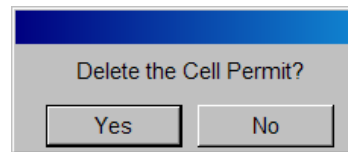
Remove System ENC Permits

Select from the Menu Bar: → *Tool → Option → S-63 (Tab)*
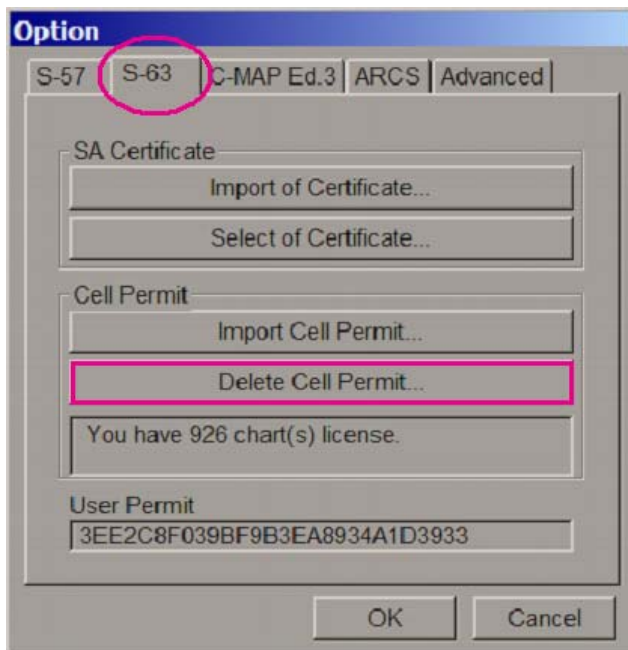
Navigate to the *Option* window using the path specified above and select the *S-63* tab.

Click on the *Delete Cell Permit* button and the user will be prompted by the system to confirm.

Select *Yes* to remove all ENC Cell Permits or *No* to cancel the operation.

Click Yes to purge the system of all ENC Cell Permits.

Remove System ENC Cells

The removal of ENC cells from the JRC ECDIS is managed on the *[S-57] System Chart* tab. Select this tab as shown below and two columns will be displayed. The left hand column contains a series of geographically zoned subfolders which are contained in the top level folder named *S57*. The zoned subfolders are defined by the longitude (East/West limits) segments, each of these contains a set of subfolders defined by North and South limits. Each ENC is stored in one of these based on their geographical position on the earth's surface.

Select from the Menu Bar: → *Edit → Delete*

The right hand column contains the ENCs that are contained in the zoned subfolders, select each zoned subfolder and select all the ENCs contained in them as indicated in the screenshot below. Select the *Edit* option on the *Menu bar* and select *Delete*. A *System Chart* message box will be displayed asking the user to confirm the operation. Click *OK* to delete all selected ENC cells. **Repeat for all zoned subfolders**.
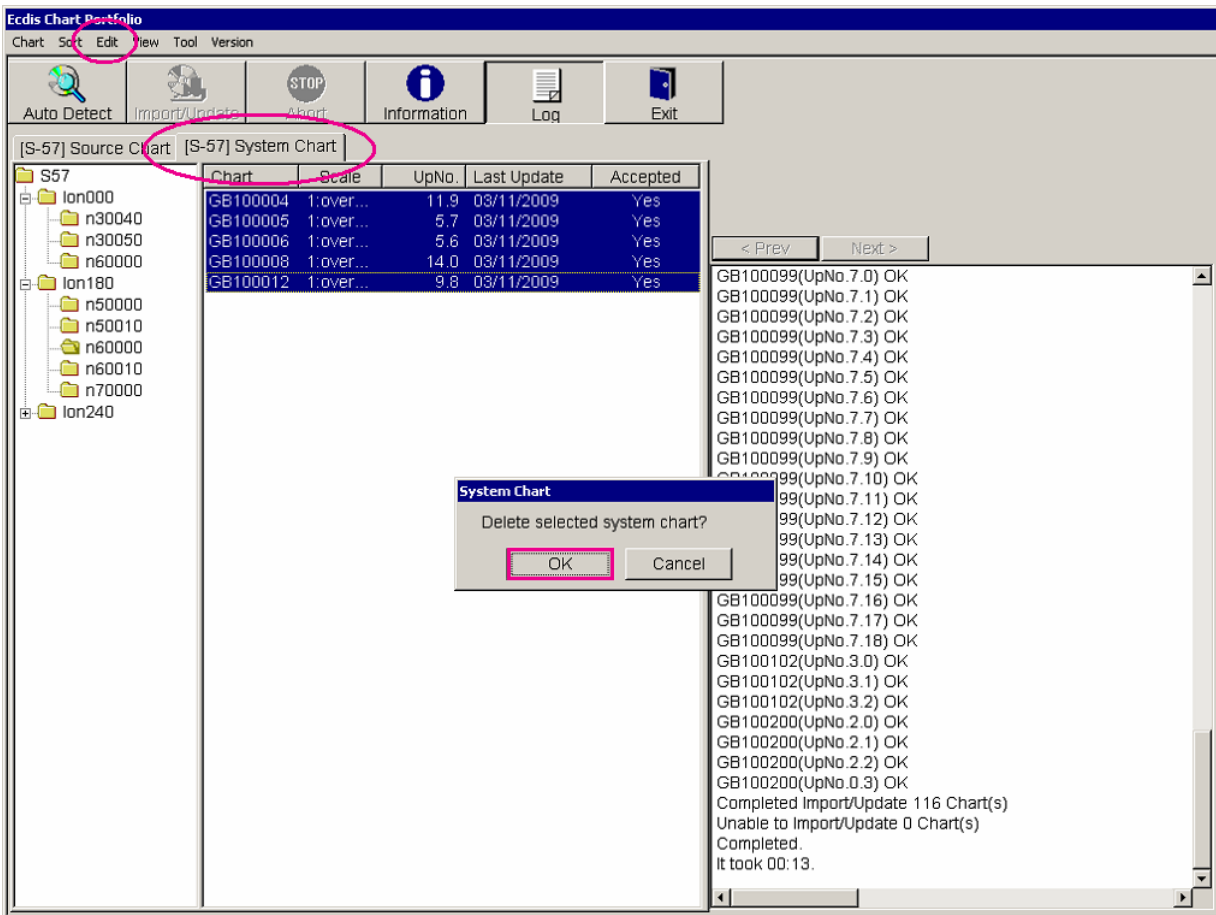
When all operations have been completed the system will be purged of all ENCs. The system *Log* column will report on each deleted ENC cell confirming the operation as shown below.

Check the Public Key

The Pre-installation Checks section refers to issues relating to the public key installed in the ECDIS. The following section outlines how these issues can be resolved in this system.
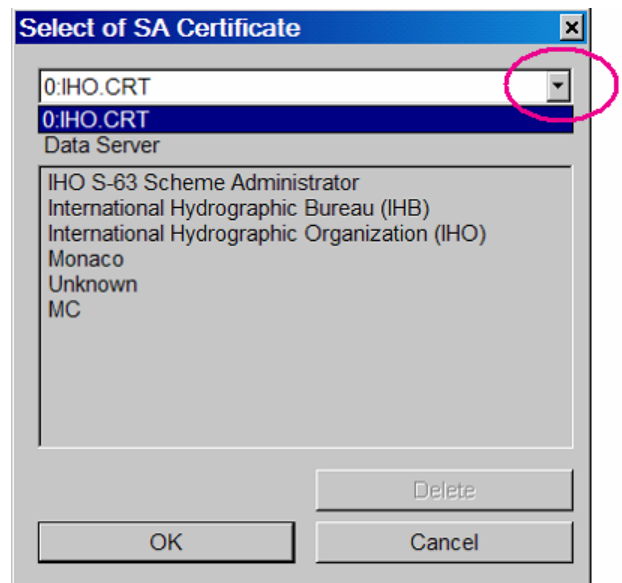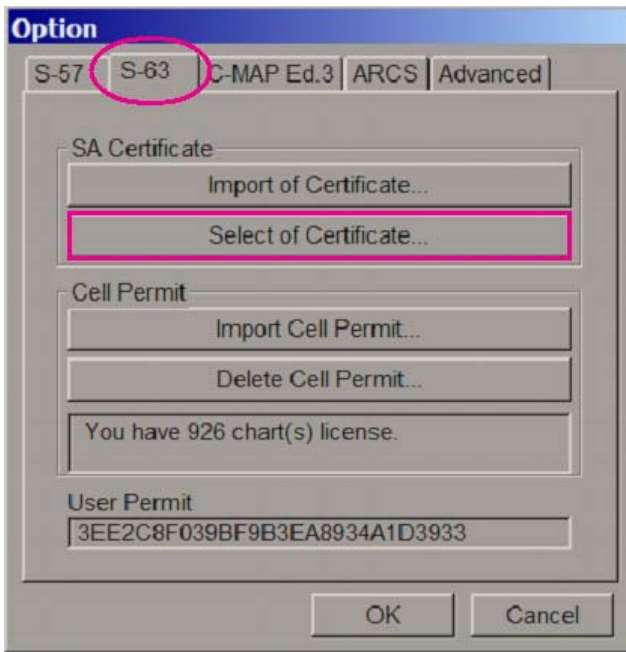
Installing the Public Key

Select from the Menu Bar: → *Tool* → *Option* → *S-63 (Tab)*

Normally this ECDIS is delivered with the IHO Public Key pre-installed. Customers using AVCS for the first time should confirm which Public Key is installed and selected for authentication. This system has the capability to import and store multiple public keys however the correct public key must be selected for use by the system. AVCS is authenticated against the PRIMAR public key and users should check that this file is installed and selected.

Checking the Installed Public Key

Using the path specified above go to the *Option* window and select the *S-63* tab as circled below. To check what public keys are installed and which, if more than one, is selected click on the *Select of Certificate* button. A *Select of SA Certificate* window is displayed showing the selected certificate (public key). Clicking on the *down arrow* (circled) will show a list of all installed certificates (public keys). In the example, below right, the IHO certificate (IHO.CRT) is the only installed certificate.

If the PRIMAR.CRT is present in the list of installed certificates then the user only need highlight this and click *OK* and proceed to install permits and import ENCs. If not then follow the process below.

Installing the PRIMAR Public Key/Certificate

In the *Option* window click on the *Import of Certificate* this action will bring up a *Find file* window as shown below right.
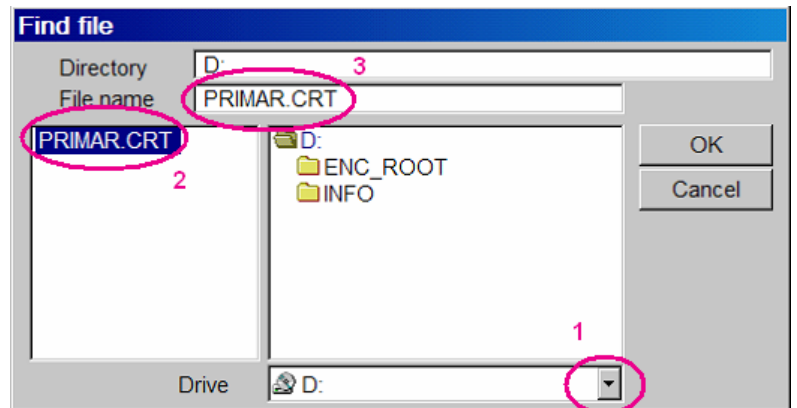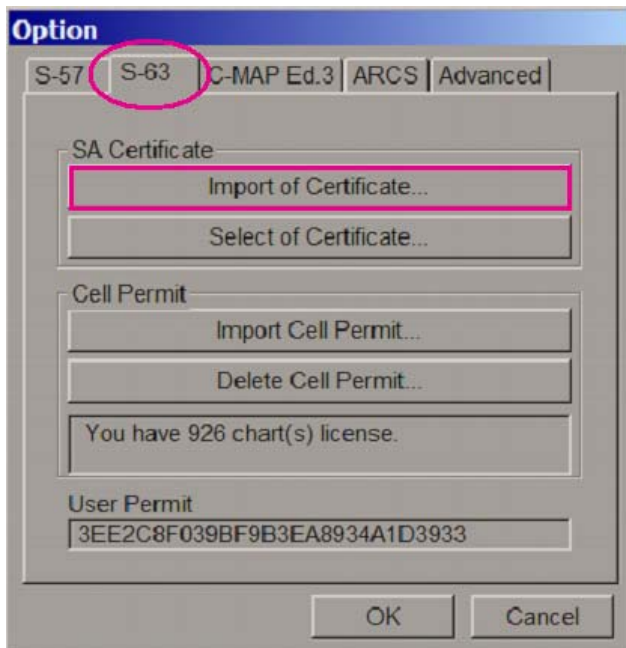
The PRIMAR.CRT file can be found on all AVCS CDs and can also be obtained directly from the UKHO or your Admiralty Chart Agent[2].
In the *Find file* window carry out the following:

1. Select the destination drive and/or folder where the certificate file is stored using the *down arrow* circled above (1). In the example above the PRIMAR.CRT is in the root directory of the CD.

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[2] The inclusion of the PRIMAR.CRT on the AVCS CDs will be phased out sometime in the future when the UKHO migrates to the IHO.CRT. The IHO.CRT can be downloaded from the IHO website (http://www.iho.shom.fr/ECDIS/S-63_SA_Certificate.htm), Click on *SA Certificate* to download the appropriate files.

2. All files with the extension .CRT will be displayed in the left hand status window box. Double click on the PRIMAR.CRT file (2).

3. When the file is displayed in the *File name* window (3) click *OK* to install the certificate.
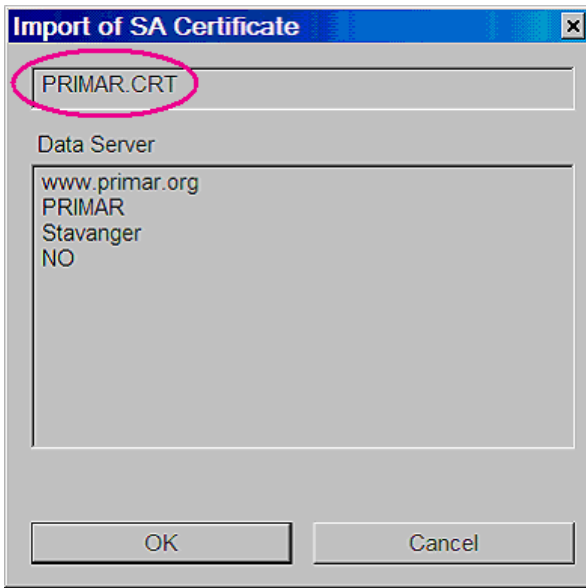
An *Import of SA Certificate* window will then be displayed showing details of the issuing authority. Click *OK* in this window to accept.

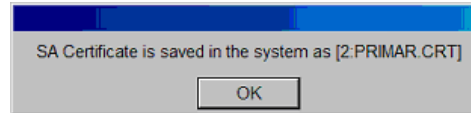A message box will display stating the *SA Certificate is saved in the system as [2:PRIMAR.CRT]*. Note that the number assigned to the certificate, i.e. *2*, is unimportant as the system assigns a number incrementally each time a certificate is imported.

Although a new certificate is imported it must still be selected as the default certificate, see below.

Select the PRIMAR Public Key/Certificate

Click on the *Select of Certificate* button in the *Option* window. The *Select of SA Certificate* window will be displayed, using the *down arrow* select, from the drop down list, the PRIMAR.CRT option. Click *OK* to continue.
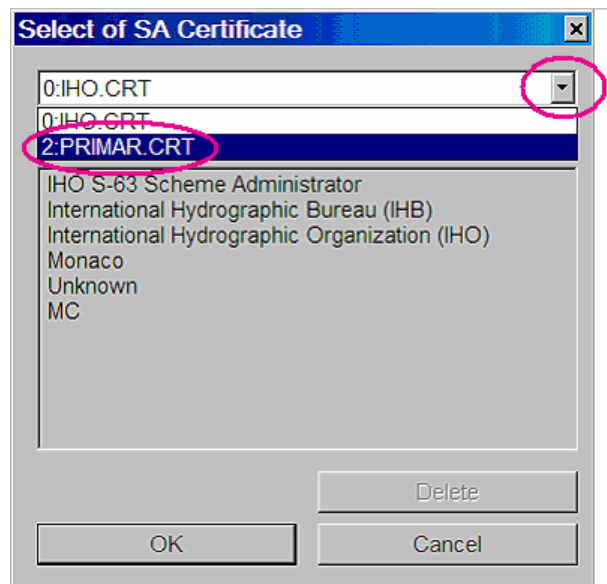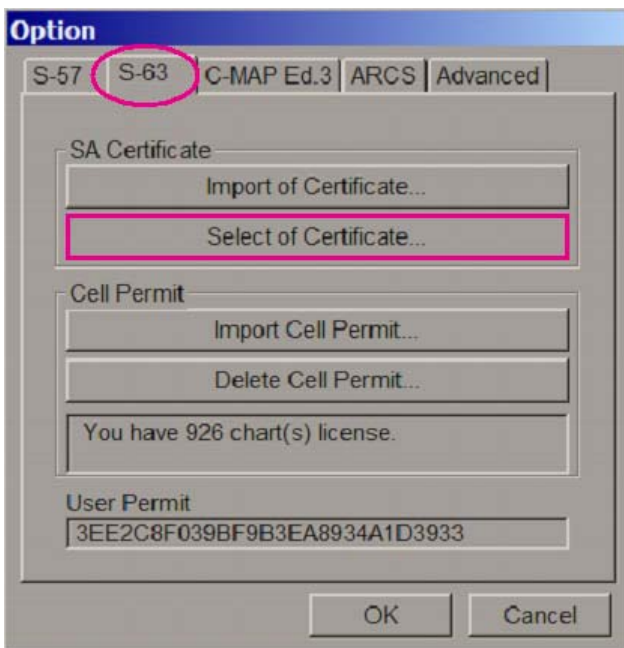
A message box stating the chosen certificate has been selected. Click *OK* to confirm selection.
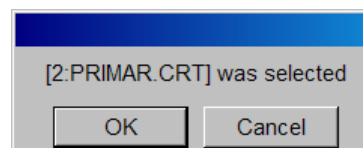
Public Key/Certificate ECDIS Warnings

If users get any of the error messages described in this section it is a strong possibility that the wrong public key is selected in the system. There is also a small possibility that they could be the result of faulty formatting of the ENC signature files associated with the ENC data. If after installing and selecting the correct public key these message are still displayed the user should contact UKHO Customer Services (see Contact Details below).

When running *Auto Detect* the following warnings will be displayed if the correct Public Key is not installed and selected. If the user receives these warnings whilst importing AVCS ENCs then it will be necessary to install and select the correct public key as described above.

When the CD is first scanned the following *S-63 off-line* message box is displayed.

The system will then scroll through all the licensed cells and return the following error messages in the *Log file* window.
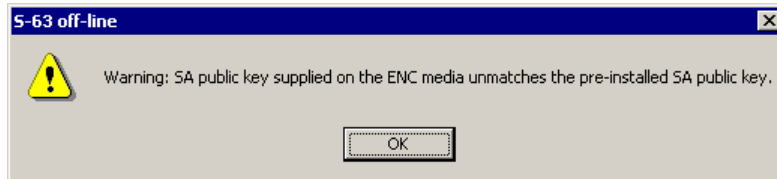

At the end of the process the following message boxes will be displayed.
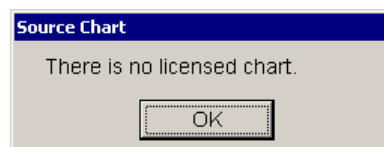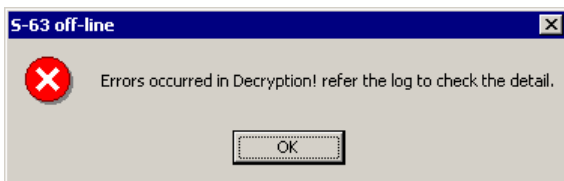
Click *OK* to both then install and select the correct certificate. If the problem persists the user should contact UKHO Customer Services (see Contact Details below).

Additional Checks for the JRC ECDIS

It is recommended that users, especially those with a new ECDIS build, check that the correct path is selected for the source media. In the case of AVCS this is the D:\ drive for the NDC-2000 and Q:\ drive for the JAN-901B series. Also if, at some time in the future, the user changes the expected source media location, e.g. change to USB drive, then this can be set using the following instructions:

In the *Option* window select the *Advance* tab and click on the *Advance Option* button.
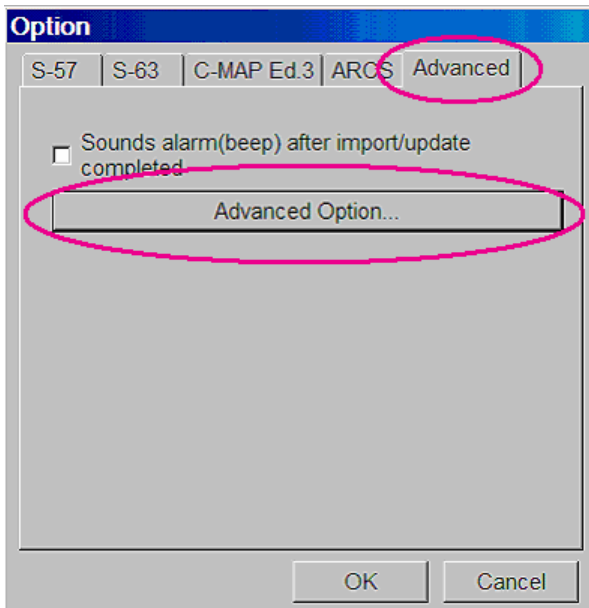
The following *Advanced Option* window will be displayed. This window contains information relating to the expected source for different chart formats. Click on the *Browse* button (circled) and navigate to the source drive that AVCS will be imported from.
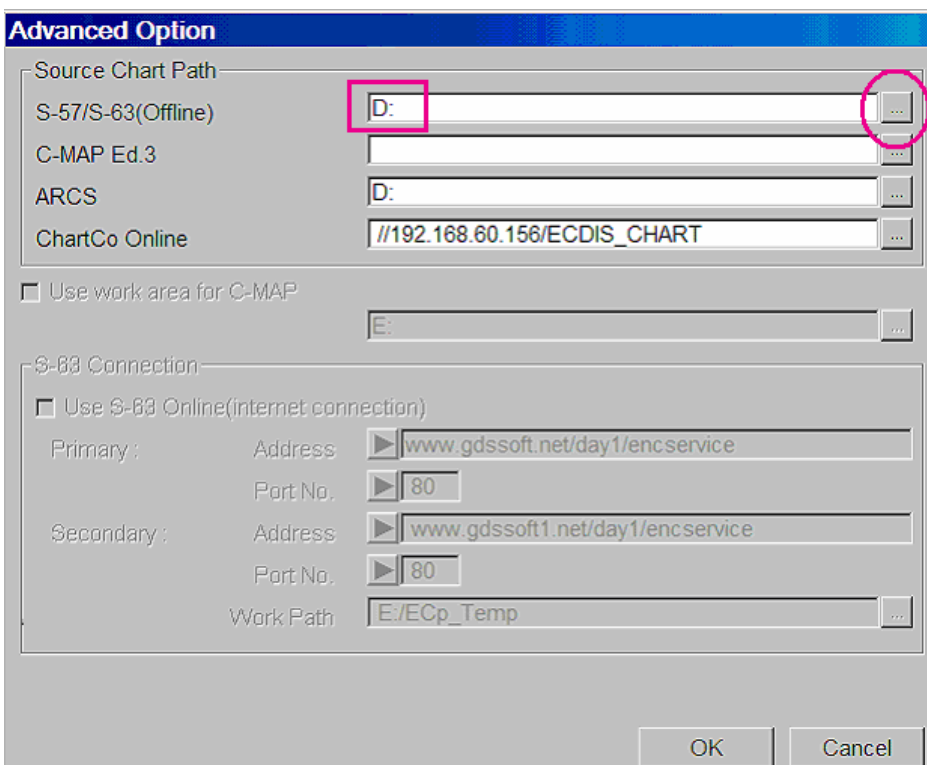
Click *OK* to both windows to return to the *Ecdis Chart Portfolio* window.

AVCS Licencing and Permit Installation

General

AVCS ENCs are currently distributed on CD-ROM and DVD media and are encrypted according to the International Hydrographic Organization (IHO) S-63 Data Protection Scheme. Initially the AVCS user is provided with <u>ALL</u> of the latest base and update discs which contain all the ENCs in AVCS. However these cannot be accessed by the ECDIS unless a valid set of S-63 *ENC Permits* is installed. Each *ENC Permit* is unique and is the method which gives the user selective access to particular ENCs required for an intended voyage(s).

The AVCS Licence

The AVCS *ENC Permits* will be supplied to you by your Admiralty Chart Agent in a zipped file. The contents of this file will depend on the user's bridge configuration as each AVCS licence allows for use on up to 5 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 contents should be extracted to a media, e.g. USB flash drive or floppy disk that can be read by the system.

The User Permit and Licence Administration

Select from the Menu Bar: → *Tool* → *Option* → *S-63 (Tab)*

All licence and permit administration is carried out in the *S-63* tab of the *Option* window.
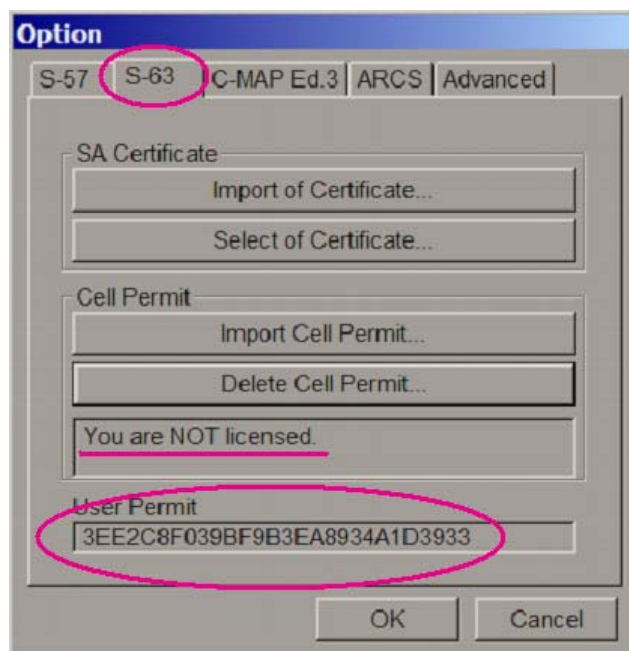
This window carries important information relating to the following:

1. The system User Permit (circled) assigned to the system and hardlock device (dongle).
2. The status of the licence (underlined) and number of permits installed. In the example across there are no licensed permits installed.

The User Permit information is useful in case the original documentation that came with the system is lost. The User Permit is required when ordering AVCS ENCs through the distributor.

Before installing AVCS permits the user should confirm the licence status reads *"You are NOT licensed"*. If the system states *"You have xx chart(s) license",* where xx is the number of ENC permits installed, these should be removed from the system. See the Data Cleansing section on removing *System ENC Permits.*

Installing AVCS ENC Permits

To install AVCS ENC Chart Permits, click on the *Import Cell Permit* button. The following *Find file* window will be displayed that allows the user to find and install the *PERMIT.TXT* file.

Select the *down arrow* located near the *Drive* box and select the source of the *PERMIT.TXT* file, e.g. the floppy disk drive as in the example below. Note, the permit file may be located in a subfolder of the source media or a destination directory on the hard drive. Users can browse to this in *folder* box located in the middle of the *Find file* window.
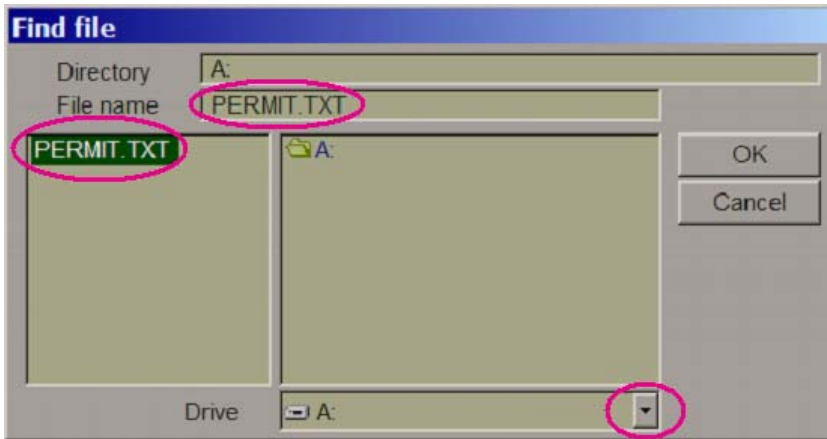
When the *PERMIT.TXT* file appears in the left hand box, double click on it to copy it to the *File name* message window. Click *OK* to start the permit import. A message box will be displayed when the process has been completed.
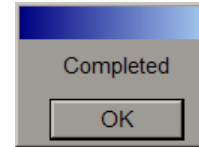
Permit Installation Warnings

After Importing AVCS Permits

If at the end of the import process the message *"You are NOT licensed"* is still displayed in the *Option* window, this indicates there was a problem during the import process. This can occur if the permits are for the wrong system, the wrong dongle is attached to the system or the permits may be corrupt. The latter is unusual but corruption has been known to occur during transmission by e-mail. Users operating with multiple ECDIS should check that the correct permits have been selected for import as it is easy to get these mixed up.

At AVCS ENC Cell Load Time

As mentioned in the previous section if an invalid permit file is loaded into the system there is no obvious warning presented to the user. If the user proceeds to try and install AVCS ENCs, the system will report error messages for each ENC in the *Log File.* The message states *"Cell Permit is invalid (checksum is incorrect).* An example of the *Log File* report to provided below:

```
[JobID:0001]-------------------
Start:06/11/2009 01:45:13
S-63(Offline)
Loading...
ERR$GB100001 (UpNo.6.0) Error: Cell Permit is invalid( checksum is incorrect).
ERR$GB100002 (UpNo.15.0) Error: Cell Permit is invalid (checksum is incorrect).
ERR$GB100002 (UpNo.15.1) Error: Cell Permit is invalid (checksum is incorrect).
ERR$GB100002 (UpNo.15.2) Error: Cell Permit is invalid (checksum is incorrect).
ERR$GB100002 (UpNo.15.3) Error: Cell Permit is invalid (checksum is incorrect).
ERR$GB100002 (UpNo.15.4) Error: Cell Permit is invalid (checksum is incorrect).
ERR$GB100002 (UpNo.15.5) Error: Cell Permit is invalid (checksum is incorrect).
ERR$GB100004 (UpNo.11.0) Error: Cell Permit is invalid (checksum is incorrect).
Completed
End: 06/11/2009 01:46:24
```

When the system has completed scrolling through the *Log* the following *S-63 off line* and *Source Chart* message boxes are displayed one after the other:
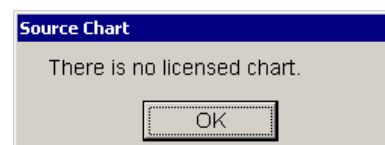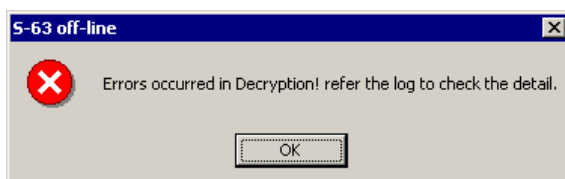
Click *OK* to both. See the Permit Installation Warnings section for the possible causes and see if remedial action is required, if you suspect the permits are corrupt please contact UKHO Customer Services (see Contact Details below).

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AVCS Base CD Installation

General

AVCS data is delivered on a series of CD-ROMs[3] (or a single DVD) labelled Base and a CD-ROM labelled Update. Each Base disc contains all the ENC base cell files and associated updates for those producer nations identified on the CD label. Users are provided with all ENCs in the service but can only access those ENCs that they are licensed for. The *AVCS Base discs* are periodically re-issued to free up space on the *AVCS Update CD*, this is currently about every 6 to 8 weeks. The *AVCS Base discs* must be loaded first before any *AVCS Update CD* can be loaded.

The *AVCS Base disc* label contains the date and week of issue. Users should be careful to only load an *AVCS Update CD* that is newer than the installed bases. Users with internet access can check the status of the latest *AVCS Base CDs* using the following link:

http://www.ukho.gov.uk/AVCS

Click on the Licensing and Updating tag to view the AVCS distribution and issue dates.

> **Although ECDIS equipment and ENCs are designed to be very reliable, there is a slightly increased risk of problems occurring when ENCs are being added, removed or updated. For this reason, you must not attempt to make changes to the installed AVCS ENCs when the equipment is being used for primary navigation or if the vessel is committed to an imminent departure.**

Installing AVCS for the first time

It is recommended that users read the Pre-installation Checks and Preliminary System Checks sections before proceeding to install ENCs from the AVCS Base discs.

New AVCS customers will be provided with an AVCS licence (permit files) and a complete set of *AVCS Base CDs* by the Admiralty Chart Agent. The AVCS permit file must be installed first before any AVCS ENCs can be loaded. A *Schedule A* should also have been supplied with the permits files. This document informs the user which *Base discs* are required to install all the user's licensed ENCs in the *Home CD* column.

There are currently 9 *AVCS Base CDs* but this number will grow as more ENCs become available for distribution within AVCS. It is unlikely that users will need to install all of the CDs in order to load all licensed ENCs. Reference to the *Schedule A* can avoid the unnecessary loading of some CDs and save the user time. A small sample of the information contained in the *Schedule A* is provided below.

RFA03 – English Channel		Holding Expiry Date 31.12.2010	
Cell	**Title**	**Home CD**	**AVCS Update**
GB301820	Isles of Scilly and Western Approaches	AVCS Base 3	N/A
GB301840	Land's End to Falmouth	AVCS Base 3	AVCS Update
GB302020	Falmouth to Looe	AVCS Base 3	N/A

PACAS Asian Seas		Holding Expiry Date 31.12.2010	
Cell	**Title**	**Home CD**	**AVCS Update**
GB202868	Tokongkemudi to Natuna Utara	AVCS Base 9	N/A
GB202870	Pulau-Pulau Leman to Badas	AVCS Base 9	AVCS Update
GB202872	Selat Karimata and Approaches	AVCS Update	N/A

> If the user does <u>NOT</u> have a copy of the *Schedule A* then the complete set of *AVCS Base CDs* must be installed to ensure that all licenced ENCs are imported to the system

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[3] All the latest AVCS Base CDs are available for download from the UKHO website. This can be found using the following link http://www.ukho.gov.uk/ProductsandServices/ElectronicCharts/Pages/AUS.aspx and by following the instructions in the *Digital Products Downloads* box. These are contained in a series of zipped files named AVCS_WKWW_YY_BaseN, where WW is the week number, YY the year and N is number of the base.

Loading the AVCS Base CDs

From the *ECDIS Chart Portfolio* window, insert the first *AVCS Base disc* identified in the *Schedule A* into the appropriate drive (*D:\ or Q:*). Click on the *Auto Detect* function button, this will prompt the *ECDIS* to scan the *AVCS disc* and display all licensed ENCs in the *[S-63] Source Chart* column and highlighted for import..
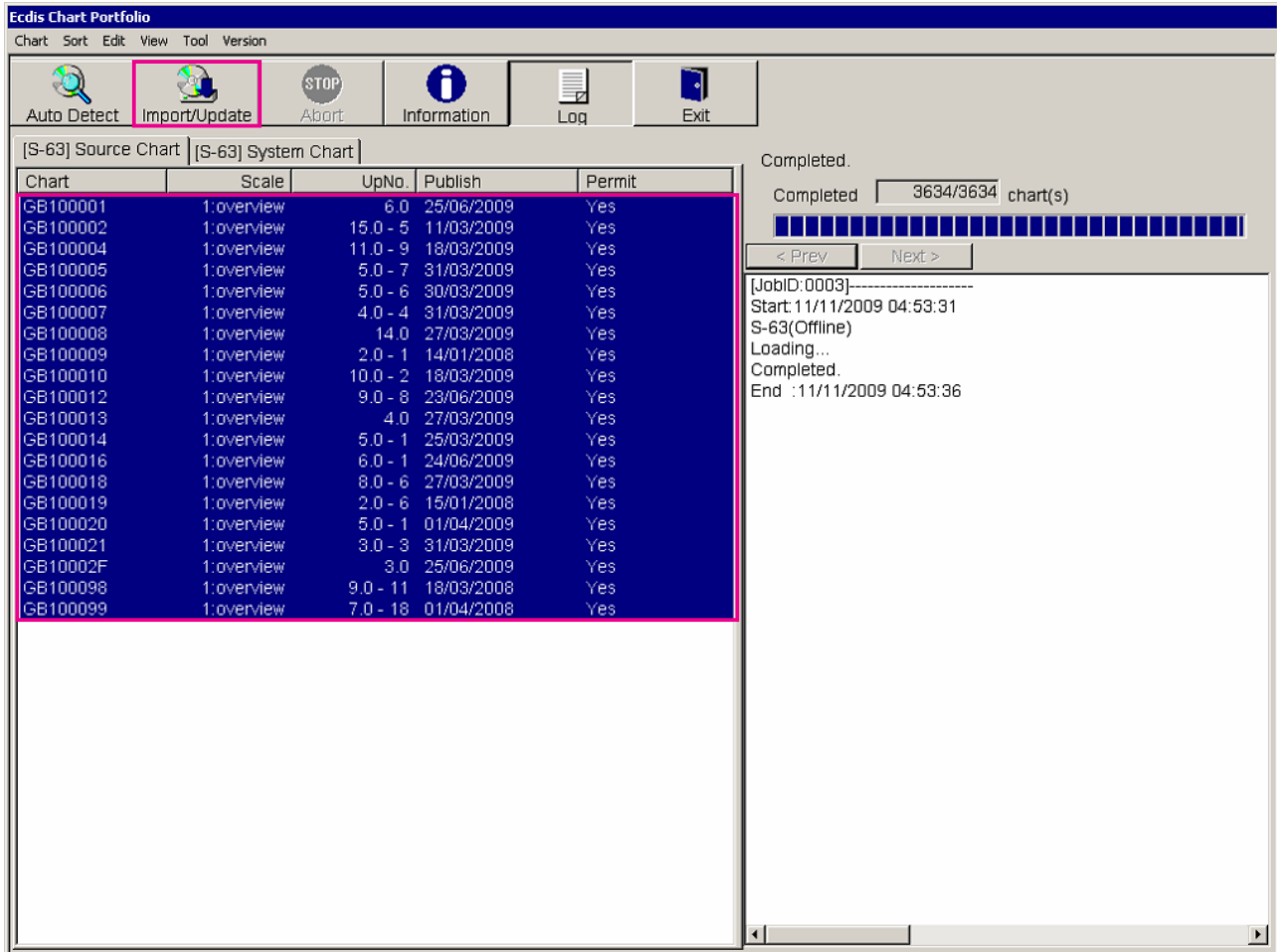
At this point it is possible for users to highlight only those ENCs that they want to import to the system database (SENC). However this is not recommended unless the user knows exactly which ENCs are required for a particular leg of a voyage.

By default, the ECDIS will automatically highlight all licenced ENCs. As mentioned previously it is possible to manually select/deselect ENCs. Click on the *Import/Update* function button to start the import.

An *Import Condition* dialog box is then displayed. The default condition is as in the example across and is the preferred option. Click *OK* to continue. Note: This dialog may not be displayed in some models of JRC equipment.
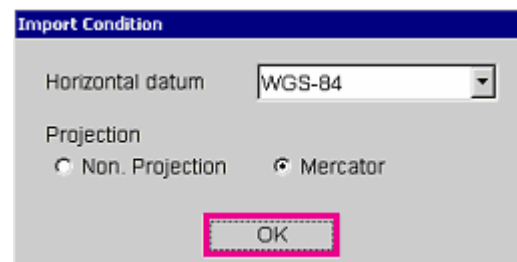
After the *Import Condition OK* button has been selected an *S-57/S-63 Import Update* dialog box is displayed (example across). The preferred option is to install all updates to imported ENC Cells. Click *OK* to continue.
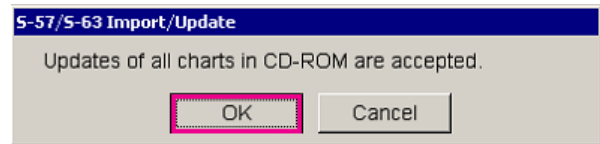
The system will now import all licensed ENCs. A *Progress Bar* is displayed at the top of the *Log File* (see screenshot below) indicating the number of ENCs processed. On completion the *Action* status will change from *Importing* to *Completed* as circled below.
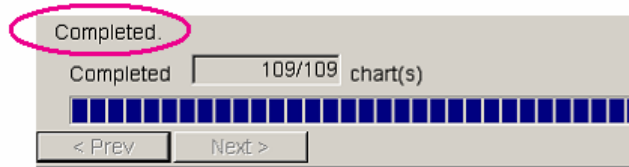
The *Log File* listing will also inform the user of the total number of failures due to errors. These will also be itemised in the *Log File* above this summary along with the error message.

The user should now replace the *AVCS Base CD* with the next *Base CD* identified in *Schedule A* and repeat the process above by clicking, in turn, on the *Auto Detect* and *Import/Update* function buttons described previously. This process should be repeated until all *Base CDs* have been installed. Finally the user should insert, if available, the latest *AVCS Update CD*, see the AVCS Updating section below.

Make sure that ALL the AVCS Base CDs have been inserted and the import operations completed before installing the latest Update CD. Updates cannot be applied unless the ENC base file is present in the system database.

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AVCS Updating

General

AVCS is updated on a weekly basis and updates are distributed via your Admiralty Chart Agent on CD-ROM[4]. The only exception to this is in a week when the *AVCS Base discs* are re-issued; in these instances an *AVCS Update CD* will not be issued. The *AVCS Update CD* contains all new ENCs, new editions of ENCs and ENC updates issued since the last set of *AVCS Base discs* were issued. The CD is cumulative so the user only has to load the latest week number. Users can update their system using the *AVCS Update CD* or remotely over the Internet using the *Admiralty Updating Service (AUS)*.

The Weekly *Update CD*

Your Admiralty Chart Agent will provide you with a weekly *Update CD*, when it is practical to do so.

The *AVCS Base discs* are re-issued about every 6 to 8 weeks depending on the amount of data on the *Update CD.* It is important that users do not attempt to load an *Update CD* that is not consistent with the *Base discs.* For example, you should not attempt to load an update that is older than the *Base discs* held on board. When new *AVCS Base discs* are issued the user must install these before attempting to load the latest *Update CD*.

Periodically the user will be supplied with an updated set of AVCS *ENC Permits*. New permits must be issued for any ENC that has had more than one new edition.

An AVCS permit file is specific to a particular week as described in the *Schedule A*. It is important that users do not install these unless they have the corresponding *Update CD* for the same week. Failure to follow this advice could render some of the installed ENC unavailable for use in the ECDIS. The only exception to this rule is if additional coverage is required in case of emergency or a change to a planned route.

The Admiralty Updating Service

The *Admiralty Utilities Installation CD* which comes with the *AVCS Start-Up Pack* contains a copy of the *Admiralty Updating Service* application. This application, when installed, provides the user with the capability to download updates directly, over the Internet or by e-mail, from a server hosted in the UKHO. For more details see the EOUS (ENC Online Update Service) Customer Service Guide on the *Utilities CD*.

Although ECDIS equipment and ENCs are designed to be very reliable, there is a slightly increased risk of problems occurring when ENCs are being added, removed or updated. For this reason, you must not attempt to make changes to the installed AVCS ENCs when the equipment is being used for primary navigation or if the vessel is committed to an imminent departure.

Installing AVCS ENC Updates

After all the relevant AVCS Base discs have been installed, the ECDIS can now be updated. The update process is very similar to installing the bases. Insert the latest AVCS Update CD in the drive (*D:\ or Q:*) and scan the CD by selecting the *Auto Detect* button. When the scan is complete select the *Import/Update* button to start the updating process.

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[4] The latest AVCS Update CD is available for download from the UKHO website. This can be found using the following link http://www.ukho.gov.uk/ProductsandServices/ElectronicCharts/Pages/AUS.aspx and following the instructions in the *Digital Products Downloads* box. It is in a zipped file named AVCS_WKWW_YY_UPDT, where WW is the week number and YY the year.
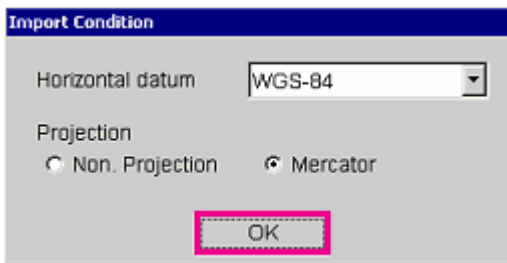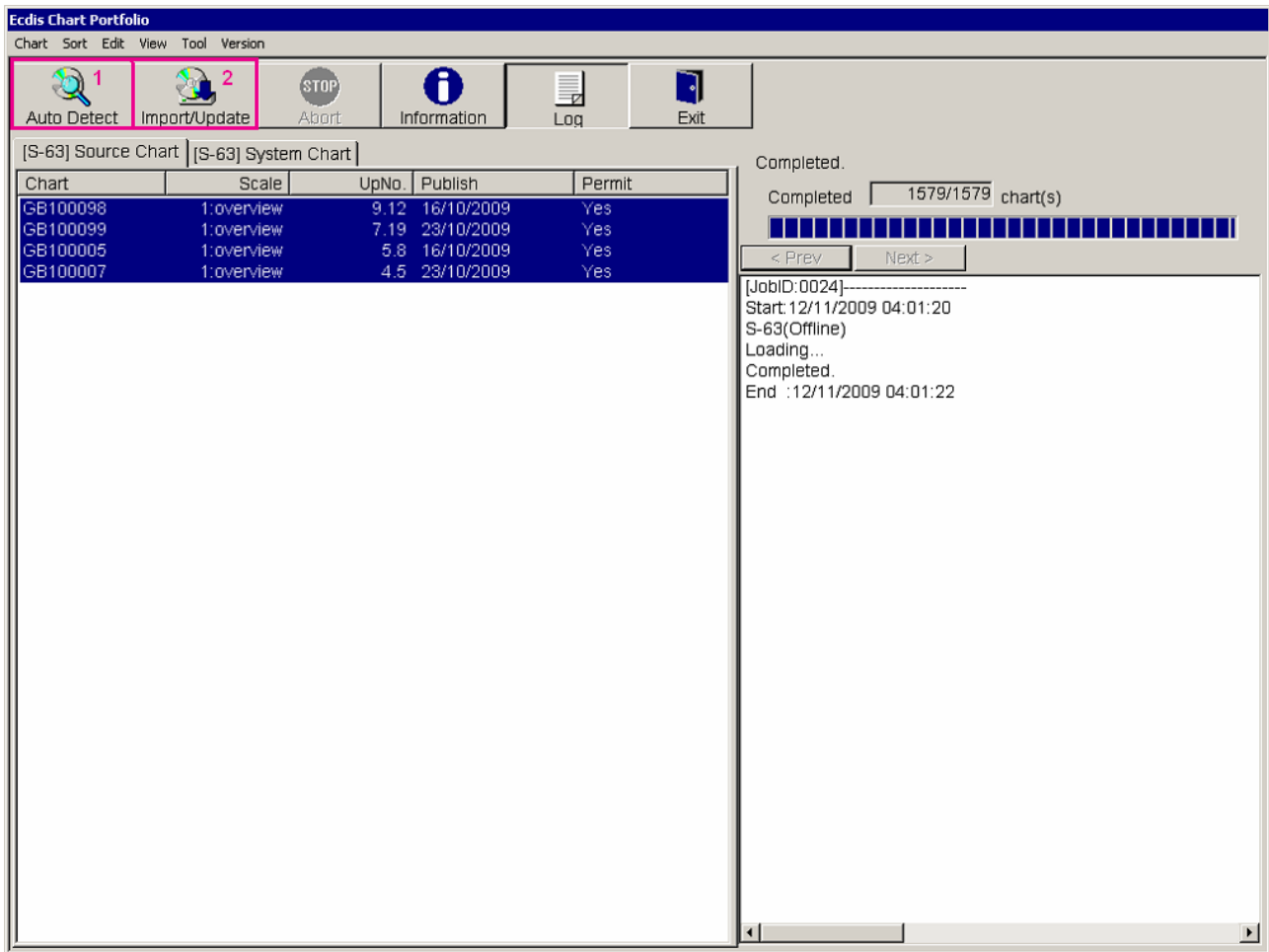
An *Import Condition* dialog box is then displayed. The default condition is as in the example across and is the preferred option. Click *OK* to continue. Note: This dialog may not be displayed in some models of JRC equipment.
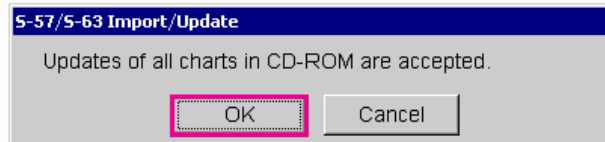
After the *Import Condition OK* button has been selected an *S-57/S-63 Import Update* dialog box is displayed (example above). The preferred option is to install all updates to imported ENC Cells. Click *OK* to continue.

The *Log File* listing will also inform the user of the total number of failures due to errors. These will also be itemised in the *Log File* above this summary along with the error message.
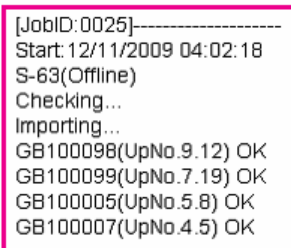
Reviewing ENC Updates and Cell Meta Data

The user has the option to review the status of all installed ENCs from within the *Ecdis Chart Portfolio* dialog as follows:

- Select the *[S-63] System Chart* tab as highlighted below.
- Highlight the ENC required for further checking.
- Click on the *Information* button.
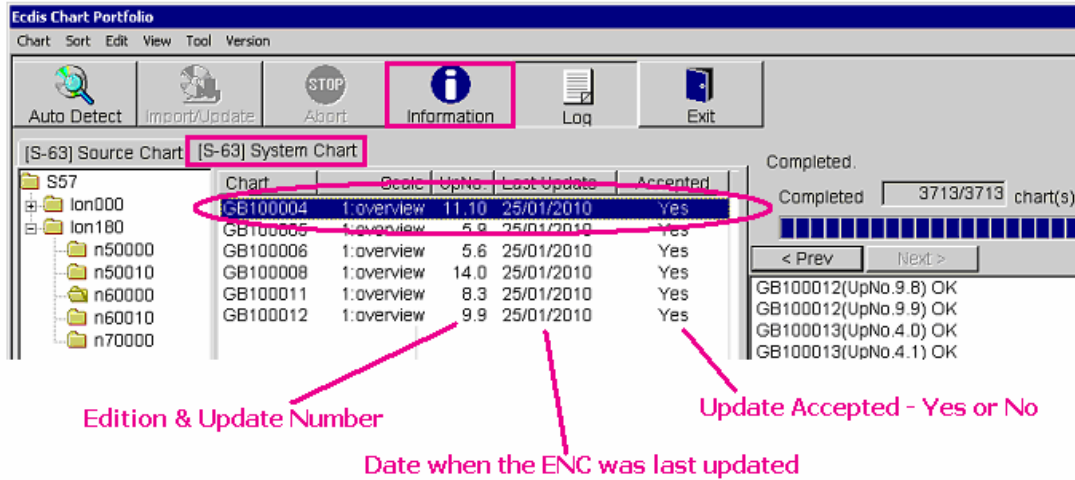
An *S-57 System Chart Information* panel will be displayed which provides users with information about the chart and update history.
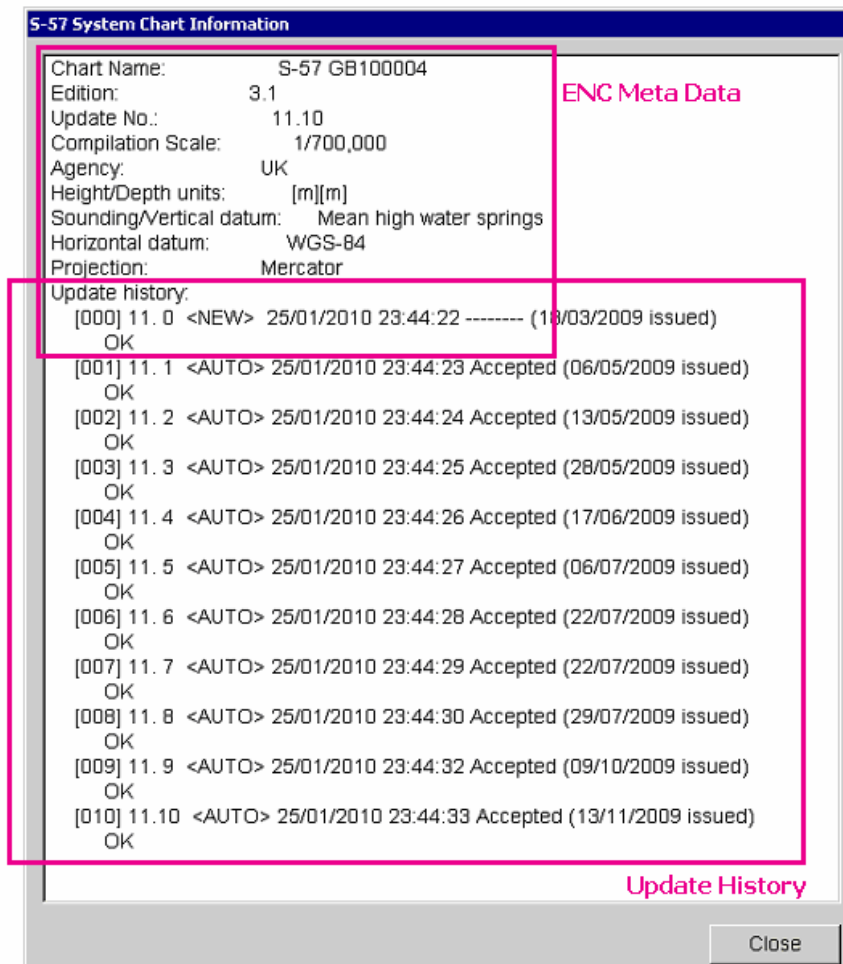
The *ENC Meta Data* relates to information about the ENC (Chart), its update status and the information relating to the construction of the ENC. The Update History provides information relating to the original base data plus all subsequent updates applied.

The following example as contained in the screenshot above is provided to explain the various fields in each record:

```
[010] 11.10 <AUTO> 25/01/2010 23:44.33 Accepted (13/11/2009 issued)
```

[010]   Update Number 10
11.10   Edition 11, Update 10
<AUTO>   The Update was automatically applied (as opposed to manual correction)
25/01/2010 23:44.33   The Date and time when the update was applied to the ECDIS
Accepted   The update has been applied to the system database
(13/11/2009 issued)   The date when the update was issued by the producing authority

System Import Log

Important Information for Users

The International Hydrographic Organisation (IHO) provides definitive guidance on the validation checks that should be carried out on ENCs produced by or on behalf of Hydrographic Offices (HOs). These checks relate to the data's compliance with the various IHO S-57 publications relating to the content and structure of the ENCs. Further validation checks are defined for implementation in the ECDIS equipment and these relate to consistency in respect of importing ENCs. These are published in the IHO publication *S-58 Recommended ENC Validation Checks.*

All ENCs supplied by HOs are validated using ENC validation tools. Furthermore, the majority of ENCs are also processed through the various Regional ENC Centres (RENCs), where additional validation checks are carried out to ensure consistency between producer nations. Over the years a great deal of experience has been gained validating ENCs knowing what *S-58* errors and warnings are acceptable and which are not.

Although *S-58* draws a clear line between ENC manufacture checks and ECDIS checks, many ECDIS manufacturers still implement the full suite of tests identified in S-58. This can sometimes result in unnecessary errors and warnings being presented to the user either on screen or in a log file. Users should only report instances where an ENC has failed to load; these are normally identified by the ECDIS as a *fatal error* or *ENC failed import*. In these instances the UKHO will seek to resolve this with the ENC producer.

> The UKHO has worked closely with JRC to remove many of the unnecessary validation checks. However older system may still carry out these checks.

Reviewing the Import Log

The system cycles through distinct processes when importing ENCs into the system, ENC *Checking* and ENC *Importing*. During the checking phase the system checks the structure of the ENCs after decryption and reports each failure quoting the cell name with the appropriate warning message. Once the checking phase has finished the system starts the import process. Each validated ENC base cell and update file is imported and reported on in the system log (see screenshot below).
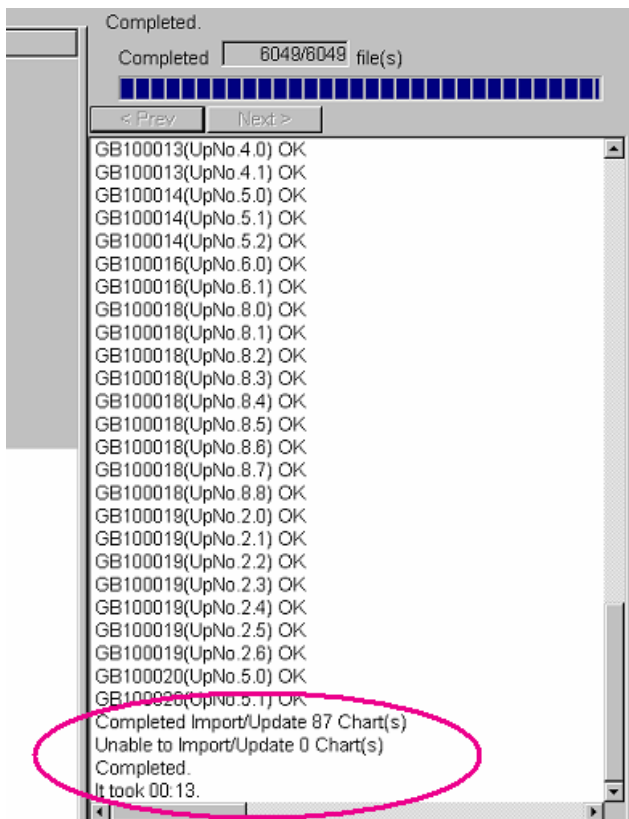
At the end of the Import process the system provides an overall report detailing the results of the import (circled).

The example across does not contain any import failures. However if failures do exist they should be investigated by scrolling up the log file to identify which ENCs may have an associated warning message in both the *Checking* and *Importing* phases.

The following is a list of known error messages reported by the system. It may not be exhaustive.

1. ERR$ Cancel (check phase)
2. Error: SGCC edit (check phase)
3. Error: FSPC edit (check phase)
4. Error(0x00D0) (check phase)
5. Error: Line Object Link (check phase)
6. Error: Area Object Link (check phase)
7. Error: Object data get (import phase)
8. Error: Decryption failed (import phase)
9. Error: Sequential number error (import phase)

Message 1 is not actually an error. It is a perfectly valid function as it is identifying that an ENC cell has been cancelled and has been removed from the system database. This message does not translate to the number of failures in the *Unable to Import/Update Chart(s)* total.

Messages 2, 3 & 4 are unnecessary checks carried out by the system and relate to the Coordinate Control (SGCC) and Feature Record to Spatial Record Pointer Control (FSPC) fields. These fields control the *Insert*, *Delete* and *Modify* pointers in an ENC update file. These messages are received during the *"checking"* phase of the import. Although unnecessary the ENC update file will not be applied to the system database.

Messages 5 & 6 whist reporting an error will be imported to the system database. It is thought that these messages relate to geometry issues with object that cross cell boundaries. In these instances the ENC base cell and ENC update file will be imported to the system database.

Message 7 is a bit of a mystery and is reported at the *Import* phase. From experience with other systems it is considered that this check and subsequent message is unnecessary as affected ENCs import without error on other systems.

Message 8 will be reported if the installed AVCS ENC permits are not compatible with this system. This may be the result of the wrong dongle being attached to the system or the installed permits are for a different system.

Message 9 is reported if the AVCS Base discs and Update CDs are not compatible. For example if the AVCS Update CD is older than the installed AVCS Bases. Also if the user misses installing a newer version of the AVCS Base CDs and tries to install the latest AVCS Update CD you are likely to get this message.

Message 9 may also be reported as a result of an ENC failing with messages 2, 3, 4 or 7 above.

Getting Help

Many of the difficulties that could be experienced when using AVCS with this system can be avoided by carefully following the instructions in this guide. However, issues that are known to have caused confusion in the past are detailed below in the Frequently Answered Questions (FAQ) section. Note that the FAQs in this document may well have been superseded and the most up to date version will be found at:

http://www.ukho.gov.uk/Support

If you encounter problems that are not solved by referring to the FAQs, you may wish to seek technical support. Please see the section below for contact details.

Frequently Asked Questions (FAQ)

None at the time of writing

Technical Support

Who should you contact?

You will receive the most effective support if you address your initial query to the correct organisation. This will usually be the manufacturer of the ECDIS equipment, or the Admiralty Chart Agent you obtain your AVCS charts from, but in certain circumstances you may need to contact UKHO Customer Services.

Problem	Contact
Hardware problems: difficulties with the keyboard, mouse, display or main system console, failure of a floppy disk or CD drive. **Software problems**: difficulties with configuring or using the ECDIS system software, interfacing problems.	ECDIS Manufacturer
Chart installation problems: problems with installing certificates, permits and AVCS ENCs, standard error codes displayed (see AVCS User Guide). **Chart content problems**: display anomalies or mismatched data displays.	Admiralty Chart Agent
Problems that have not been resolved by your Admiralty Chart Agent.	UKHO

Contact details are available on the last page of this guide.

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

- The AVCS license number
- The ECDIS system (and model/version) being used (especially if you have more than one system on board)
- The date and week number of the latest base and update discs held on the vessel
- The issue date of the latest ENC Permits held. If the problem appears to be related to the permits it is best to send a copy of the latest ENC Permits held by email if this is possible.
- Any error messages displayed on the ECDIS (see page 18 of the AVCS User Guide)

Emergency Chart Permit Generation

In certain circumstances it may be necessary for a vessel to get access to an AVCS ENC at very short notice, for instance if she has to divert her route **due to a medical or safety emergency**. In these emergency circumstances only, individual AVCS ENC Permits can be obtained from the UKHO 24 hours a day, 365 days a year. These permits can be transmitted direct to the vessel by email wherever possible, by fax, or simply by reading the characters out over the telephone or radio. Each permit consists of 64 characters.

Contact details for the UKHO are available on the last page of this guide. Please quote your vessel name, the User Permit Number of your ECDIS system and the required ENCs.

Feedback

We hope this User Guide assists you in using AVCS with this system. If you have any feedback on the content of this particular guide, or the online FAQs, please forward your comments to your Admiralty Chart Agent or directly to the UKHO.

Contact Details

Company Contact

If your company has a specific policy for obtaining support on IT and navigational systems, please enter details here, with contact details for the Support department:

ECDIS Manufacturer

Support Hours (Time Zone):	Telephone:
	Facsimile:
	Email:
	Contact:
Web:	

Chart Agent

Support Hours (Time Zone):	Telephone:
	Facsimile:
	Email:
	Contact:
Web:	

UKHO

Support Hours (Time Zone):	Telephone:	+44 (0)1823 723366
	Facsimile:	+44 (0)1823 330561
24hrs	Email:	customerservices@ukho.gov.uk
	Contact:	UKHO
Web:	http://www.ukho.gov.uk/Support	