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MARINTEK REPORT

TITLE

SHIPX Workbench

Getting Started

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ABSTRACT

This report describes the basic features of the SHIPX Workbench including installation and configuration of the program.

KEYWORDS	ENGLISH	NORWEGIAN
GROUP 1	Software	Programvare
GROUP 2	Hydrodynamics	Hydrodynamikk
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Typographical conventions

The following conventions are used here:

Bold Initial Caps:	Key names, menu names, dialog boxes and items that are selected from menus; for example, **Edit** menu; sub menus, for example **Start Menu|Program Files|SHIPX**.
`Courier`:	File names and paths, commands.
Italics:	Names of buttons or fields in dialog boxes, for example *Add New* Introduction of new terms.

CONTENTS

1 PROGRAM INSTALLATION

This section will describe the different steps required to get your SHIPX Workbench with licensed Plug-Ins running on your PC. The rest of the chapter will describe in more detail the functionality of SHIPX and gives an introduction to the most common functions in the workbench. *Please follow the instructions carefully*. The use and further set-up of SHIPX is described in Chapter 2.

1.1 INSTALLATION INSTRUCTIONS

To install SHIPX, you can either run the installation from CD or download the latest available from the Internet (the SHIPX website is located at http://shipx.marintek.sintef.no/). If downloading it from the Internet, you will be prompted for a user name and password that you should have received from MARINTEK. When downloading from the Internet, you will need to unzip the program installation to a temporary folder and start the `setup.exe` file. If you are installing from a CD, the startup screen will help you accessing the different installation programs (see Figure 1.1).

Figure 1.1 The installation startup screen when installing from a CD.

The installation program installs the SHIPX Workbench with its necessary components (such as the appropriate version of the Java virtual machine).

The installation program will ask you where you want to install SHIPX. The default location of `\Program Files\SHIPX` should be suitable in most cases.

User's Manuals for the Plug-Ins are available online in the **Help|Documentation** menu. In order to view the online manual, a *pdf* document viewer such as the free Acrobat Reader must be installed on your PC. If you do not have such a viewer installed (i.e. the manual does not show up when you choose it from the menu), you can install Acrobat Reader from the Adobe website at http://www.adobe.com/products/acrobat or from the installation startup screen if you are installing from a CD.

The first time you run SHIPX on your computer, the *SHIPX Configuration Manager* will start (see next section). After this configuration, you should be ready to use SHIPX.

1.2 SHIPX CONFIGURATION MANAGER

The *SHIPX Configuration Manager* can be started from the **SHIPX** folder in the **Start** menu. *You should use this utility whenever you need to replace your license file* (e.g. if you have some new license options). The first time you run SHIPX on your computer, the SHIPX Configuration Manager will start automatically (see Figure 1.2).

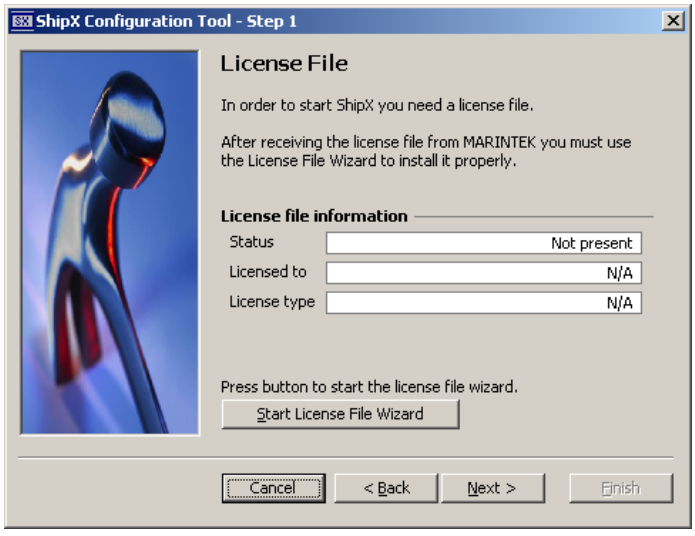


Figure 1.2 SHIPX Configuration Tool – Step 1: License file update

1. The first step is to locate the appropriate license file for SHIPX. You will receive this license file separately, either on a diskette, via e-mail or on the installation CD (in a separate `\License` folder). To install or update the license file, start the *License File Wizard* by clicking the *Start License File Wizard* button.

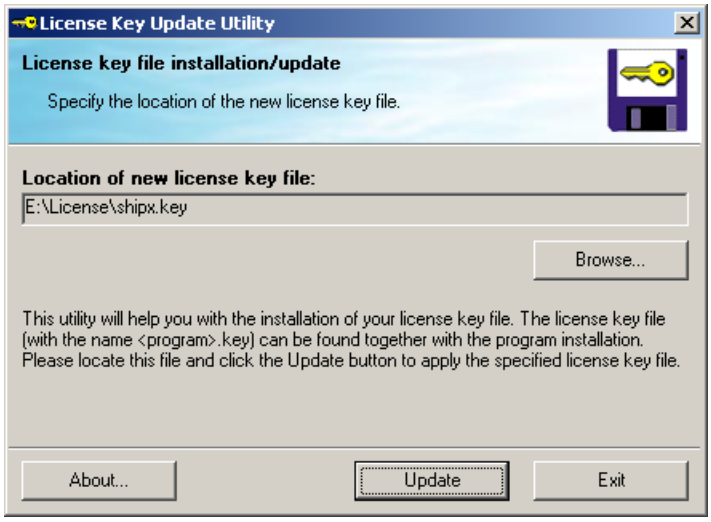


Figure 1.3 License Key Update Utilitiy

2. To update the license key file, click the *Browse...* button and locate the license file `shipx.key` (*not* the one located in the `\Program Files\SHIPX\bin` !). When you have located and selected the file, click the *Update* button and the file will be copied to the correct location on your PC.

3. The next step is to configure the Auto Update settings in SHIPX (more about this in Section **2.3.4** on page 2.13). Typically, you should choose to check for available updates on startup and set the notification level to *some*. In addition, you will need to enter your user name and password for the SHIPX website. If you are installing SHIPX from a CD, you can skip the Auto Update settings for the moment, as this can be re-configured from the Workbench later, but if you are installing from the Internet, it is important that the correct settings are given at this stage.

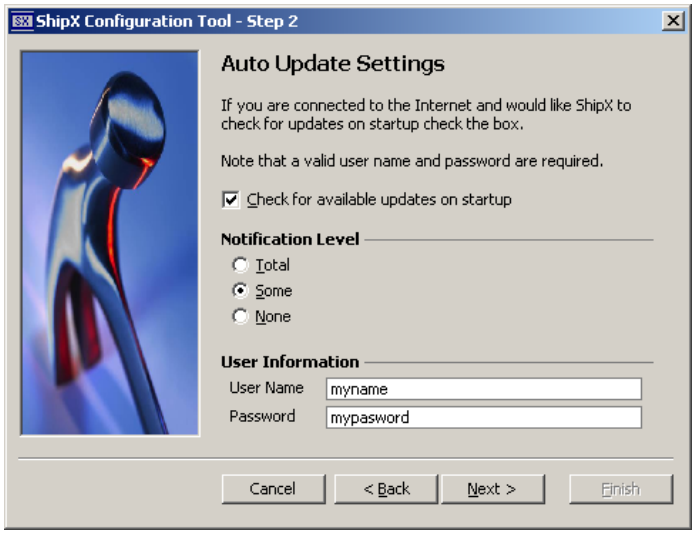


Figure 1.4 SHIPX Configuration Tool – Step 2: Auto Update Settings

4. The final step is to update the SHIPX Workbench and install all licensed Plug-Ins. If you are installing SHIPX via the SHIPX website, you should click the *Update from Internet* button. If

you are installing from a CD or an intranet location, you should click the *Update from Location* button (usually, the correct location of the `\Updates` folder will be located automatically). **Please notice that this is not just an update, but is required to complete the program installation!**

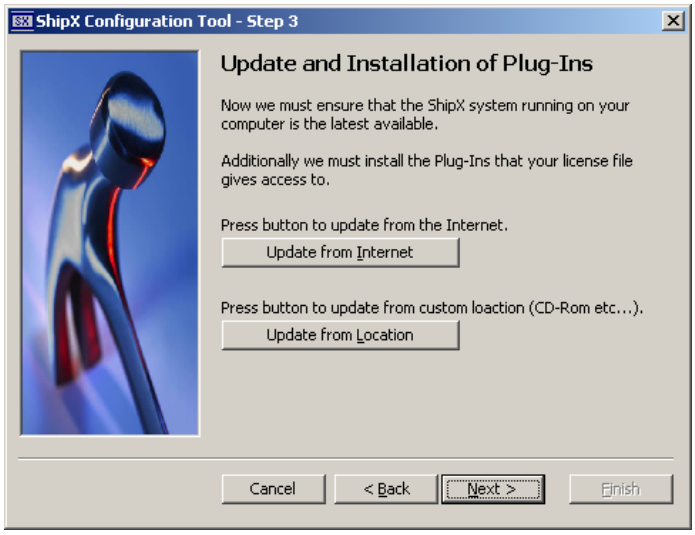


Figure 1.5 SHIPX Configuration Tool – Step 3: Update and Installation of Plug-Ins

5. The SHIPX Auto Update Utility is started, and all the licensed components will be installed/updated on your PC when you click the **Get it Now** button (see Figure 1.6).

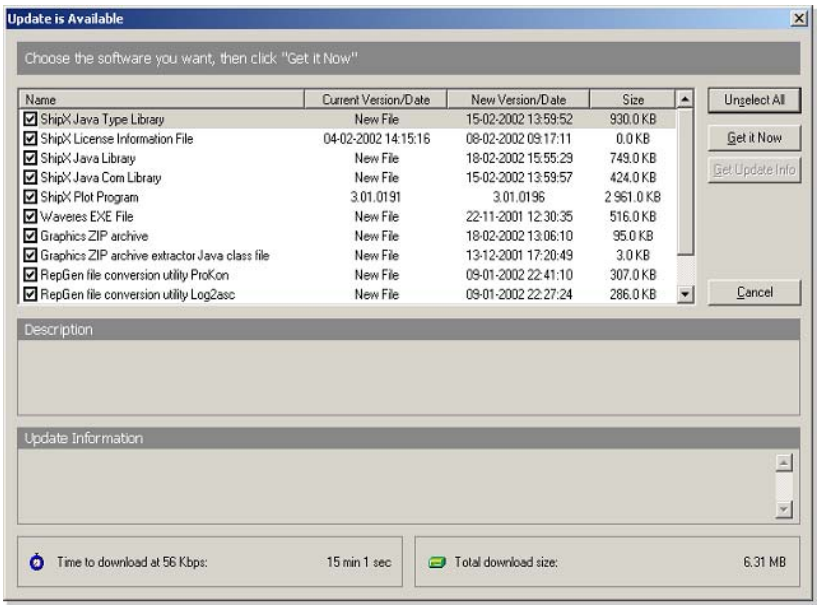


Figure 1.6 SHIPX Auto Update Utilitiy

After all the files are installed and updated, the SHIPX Workbench is ready for use and can be started via the Start menu.

1.3 HASP DEVICE DRIVER

If some of your Plug-Ins require a harware key in order to function properly (e.g. SHIPX Vessel Responses), you will need to install the appropriate driver for the HASP key. The HASP Driver installation program can be downloaded from the SHIPX website. If you are installing from a CD, it will be avaliable from the startup screen (see Figure 1.1)

1.4 COMPANY LOGO IN THE SHIPX PLOT PROGRAM

The SHIPX Plot Program can be customized with your own company logo in the plot/report header. To get your company logo in the upper left corner of all plots/reports (as the MARINTEK logo shown in Figure 2.8), simply place a file containing your logo in the `\Program Files\SHIPX\bin` folder.

The following rules apply:

6. The logo file must have the name `logo.<ext>` where `<ext>` is the file type which can be either *`gif`*, *`jpg`*, *`wmf`* or *`bmp`* (e.g. `logo.bmp`). Each time you start the plot program, your logo will be loaded and added to all plots/reports. A logo.bmp file is included in the program installation. You can either replace this file, or add another file if you are not applying a bitmap (*.bmp*) file.
7. If multiple logo files are present, the search order is as follows: logo.*gif*, logo.*jpg*, logo.*wmf* or logo.*bmp*. The first file found in this search order will be applied.

8. The logo will be scaled down if it is too large. If you think the logo is placed too close to the frame in the plot heading, you can add some extra white space in your logo file by editing it in a graphical program.

When exporting plots/reports to Microsoft Word, the file `enclosure.doc` located in the `\Program Files\SHIPX\bin` folder is applied as a document template. (The logo is *not* exported from the plot program). Thus, to include your company logo in the exported Word documents, you should insert your logo into enclosure.doc. *Do not change anything else in this file*, as this may make the file invalid for its purpose. Always make a backup copy before editing the file.

1.5 TROUBLESHOOTING

If you for some reason should encounter any problems during installation or while using SHIPX, please refer to the Troubleshooting section at the SHIPX website before contacting MARINTEK as you may find useful information there. We always try to keep these pages updated with the latest experiences when helping users troubleshoot their problems (see Figure 1.7).

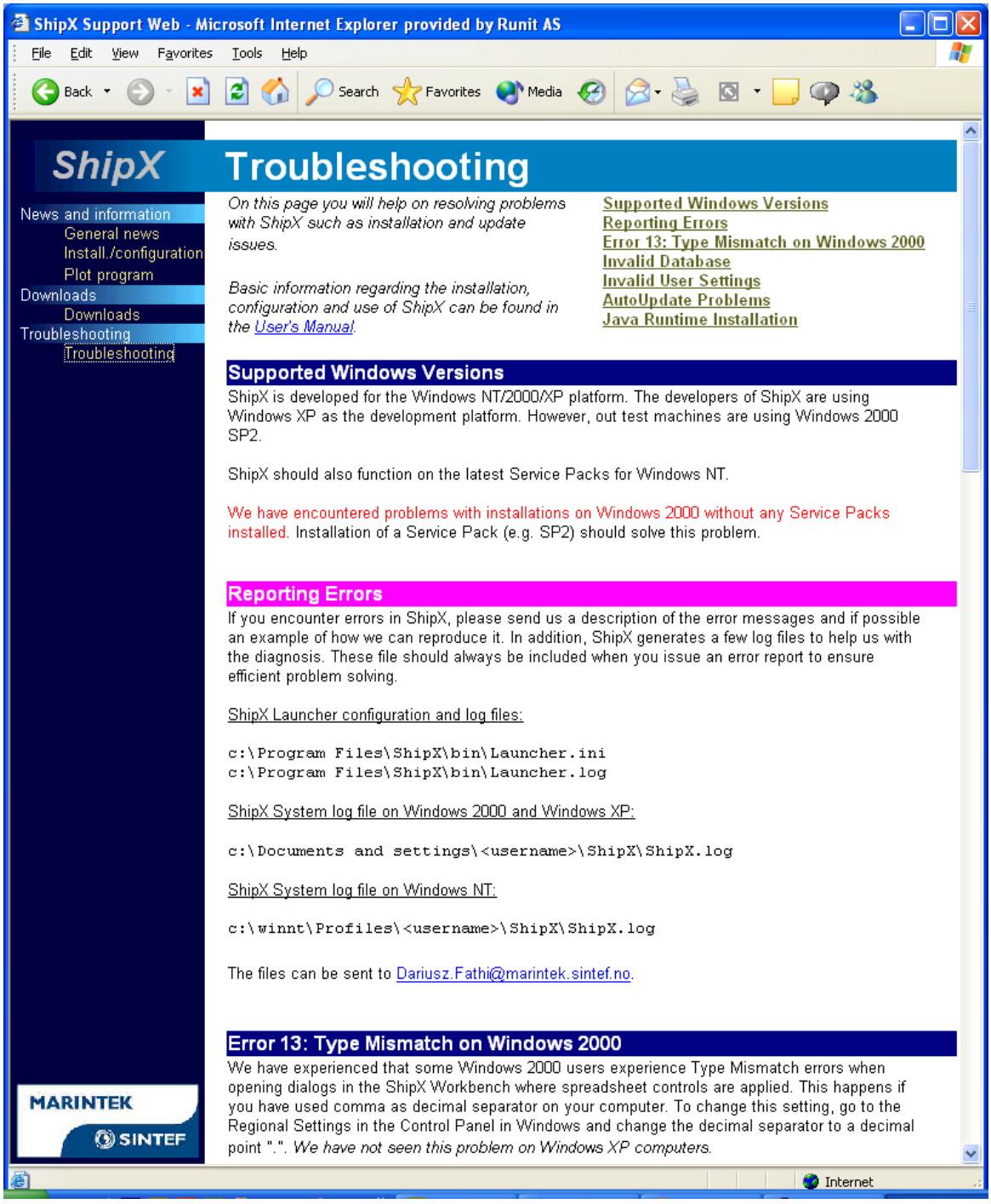


Figure 1.7 Example screenshot from the Troubleshooting section on the SHIPX website

2 SHIPX

SHIPX is MARINTEK's common platform for ship design analyses. The system is a unique workbench environment that facilitates simple and efficient integration of different applications and components. The system is based on a state-of-the-art computer architecture which gives a large degree of flexibility with respect to scaling, implementation languages and –technology. Finally, it is built on a common representation model for common vessel information, which facilitates efficient exchange of information between different ship design applications.

The main aim of SHIPX is that input should be given once during the design process. In addition, a common workbench will facilitate re-use and generalisation of user interface components, increasing familiarity and reducing the user threshold for all tasks involved.

This chapter gives a simple introduction to the SHIPX system, explains the basic concepts and describes the practical use of the system.

Contents

2.1 THE SHIPX WORKBENCH

2.1.1 User Interface

The SHIPX Workbench represents the ”visible” part of SHIPX Workbench Environment. All interactions with the user are through this part of the program. Together with SHIPX Workbench there is a framework that can be used to extend the workbench with new functionality through so-called *Plug-Ins*. This can be everything from a complete new calculation module (for instance a manoeuvring program) to a new menu option.

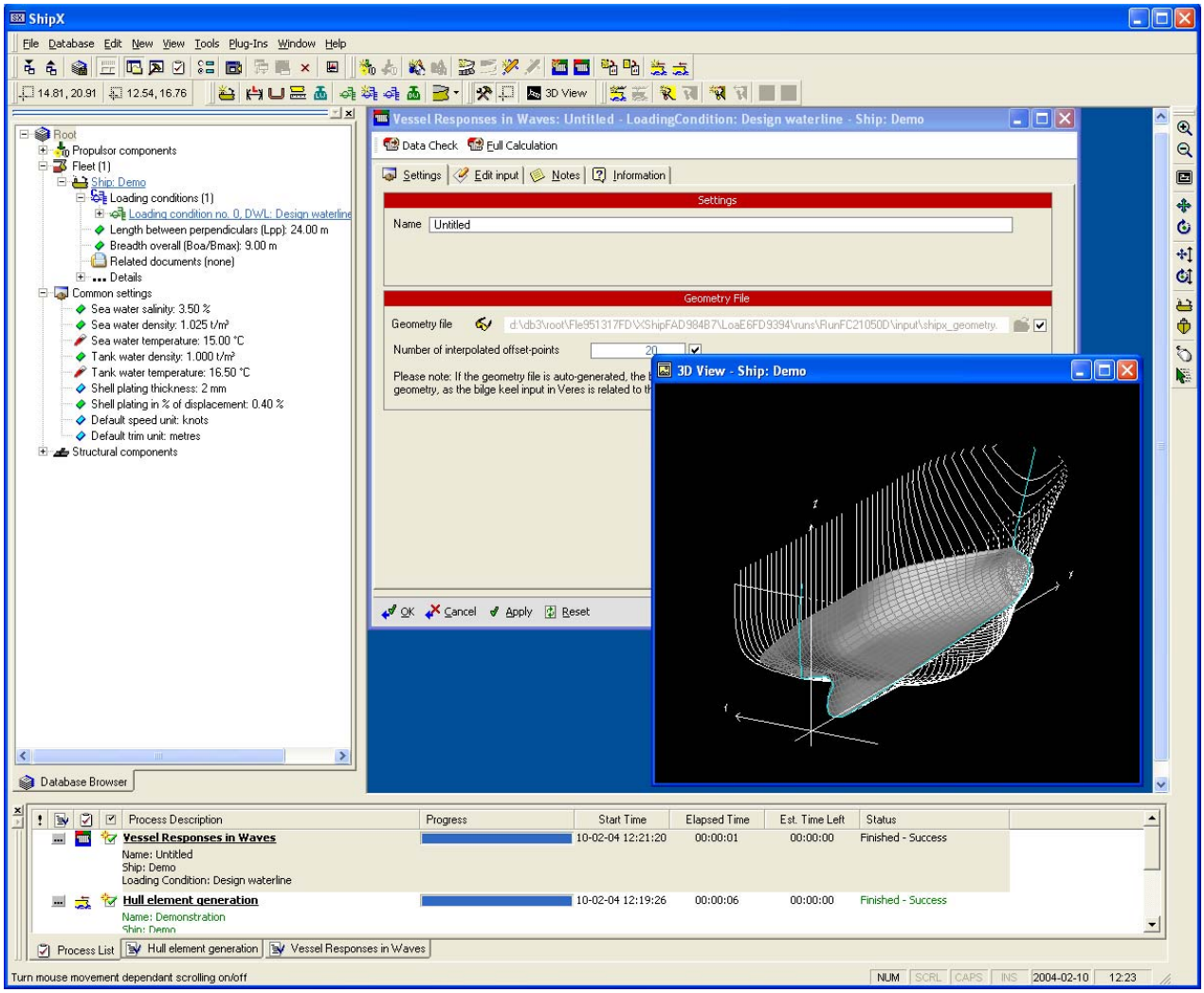


Figure 2.1 The SHIPX Workbench

2.1.2 Plug-Ins

Most functionality in SHIPX is implemented in so-called *Plug-Ins*. A Plug-In connects with the workbench and extends the functionality of the workbench with new buttons, menu choices, user interface components etc. This concept makes it simple to extend SHIPX with new functionality, and to customise it for special users.

Only the Plug-Ins that are currently loaded into SHIPX and that are included in the license will be available for the user. After a standard installation, all licensed Plug-Ins will be added automatically, and there will be no need for the user to register any Plug-Ins manually. For advanced users, one can control which Plug-Ins that are loaded through the ”Plug-In Manager” (see Figure 2.2). The Plug-In Manager can be accessed through the **Plug-Ins** menu. An overview of available and planned Plug-Ins are listed in Table 2-1 and Table 2-2 on page 2.18.

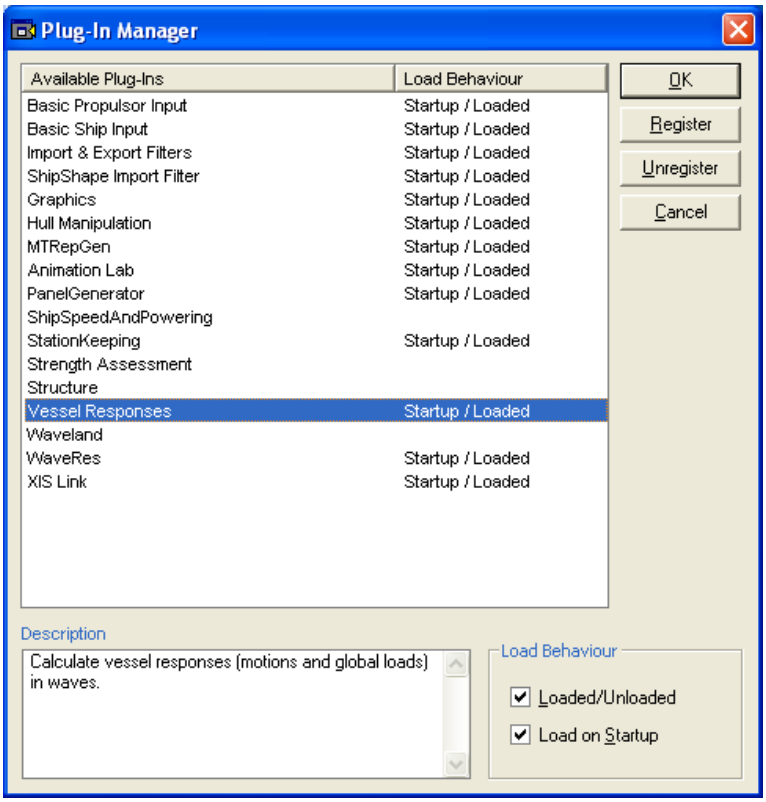


Figure 2.2: The ”Plug-In Manager” can be applied to register and select which Plug-Ins to be used in the workbench.

2.1.3 Using the Database Browser

Figure 2.1 shows an example of the SHIPX user interface. The tree structure on the left-hand part of the window is central in the use of the program (see Figure 2.3). This is the *SHIPX Database Browser*, which displays the contents of the currently open database in SHIPX. Most functions can be selected from context menus in this tree structure, activated by selecting a node in the tree view with the mouse, and clicking the right-hand mouse button. Figure 2.5 shows the context menu for "ship" in the database browser.

Many of the functions can also be activated from the buttons on the toolbar, or from pull-down menus. Buttons and pull-down menus act on the on the active object of the correct type in the Database Browser, e.g. the active hull, active loading condition or active run of a specific type. The active object is selected by clicking in the Database Browser, and is shown underlined in the Database Browser (see e.g. the loading condition in Figure 2.3). To avoid errors and misunderstandings, it is generally recommended to use right-click on the object of choice, rather than using buttons and pull-down menus (at least for inexperienced users).

A SHIPX database contains SHIPX data objects, as well as a file structure where other files, such as input files and result files from calculations etc. can be stored. The top level of the tree-view shows which database is currently open.

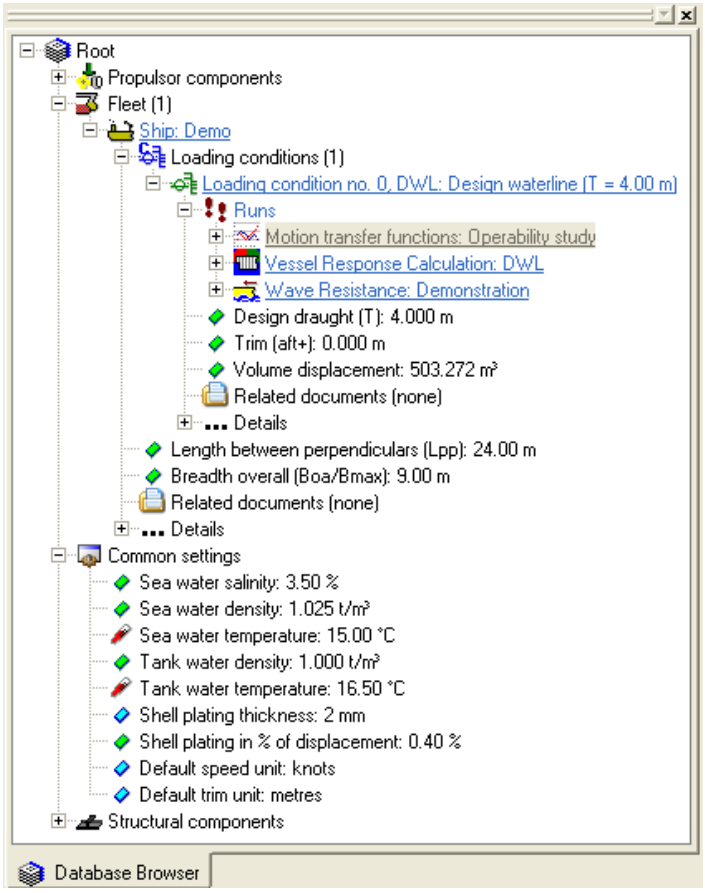


Figure 2.3 The SHIPX Database Browser

Several collections appear on first level in the database. At present, these are

- Fleet (collection of ships)
- Common settings (default seawater density etc.)
- Propulsor components
- Structural components

A ship can have many loading conditions and each loading condition can have many runs associated with it.

The concept of *runs* is introduced to cover different terms as "calculations", "analyses", and "experiments". A *Run* might contain both *Input* and *Results*, and these can in turns contain single values, tables with values or tables with objects. In addition, information like date and time, describing text and version number for the data are stored in a run.

Changes done to the database are not automatically saved before SHIPX is terminated. To avoid accidental loss of data it is recommended to store data manually after major changes to the database. (**Database|Save**, click  or select *Save All* by right-click on most levels in the tree-view.) It is also possible to save single objects.

It is possible to apply several databases, but only one at a time. To change to another database, choose **File|Open Database…** to select the location of the other database. For multi-user databases, some additional functions will appear for the objects in the database, which regulate locking the data for editing by a single user (checking in/out data).

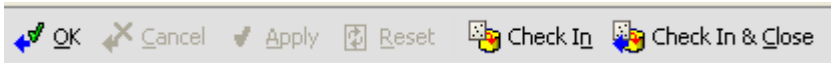
You can read more about the SHIPX database in Section 2.2. Database configuration is treated specifically in Section 2.2.7.

2.1.4 Standard SHIPX dialog buttons

At the bottom of all standard SHIPX dialogs, you will find a row of buttons with standard functionality that you should get familiar with. Depending on the width of the dialog, the button row will either be standard (including descriptive text) or compressed (icons only). Figure 2.4 shows examples of this button row.

Standard

Compressed



Standard (multi-user)

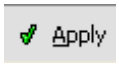
Compressed (multi-user)

Figure 2.4 SHIPX dialog buttons

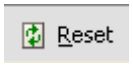
The functionality for each of the buttons is as follows:

Applies the values and closes the dialog window.

Discards all new values and closes the dialog window.

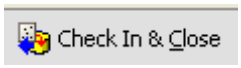


Applies the values to the database without closing the dialog window.

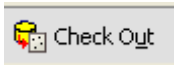


Resets the values in the dialog window (reads them again from the database).

Applies the values, saves them and makes them available to other users without closing the dialog window*****.



Same as above but closes the dialog window (i.e. same as OK but including the "Check-in" part)*****.



Checks out the data from the database so they are available for editing*.

Reloads the values in the dialog window (reads them again from the database)*. Use this button to read recent changes applied by other users.

**** Applies for multi-user databases only (see Section 2.2.7 for details).***

For multi-user databases, some additional functions will appear for the objects in the database, which regulate locking the data for editing by a single user (checking in/out data). As a multi-user database, the SHIPX database must support features to prevent different users from modifying the same data simultaneously, and to ensure that all users work on the most recent information. SHIPX therefore requires the user to check out any object before it is modified. Once the modifications are completed, the object has to be checked in before other users may change it. It is not possible to change an object that is checked out by others, but it is possible to view it, or perform any operation that does not require changes. Check out/Check in appears as entries in the context menus in the tree-view (obtained by right-click on database objects) and at the bottom toolbar in dialog windows in SHIPX. *Please notice that objects are not automatically checked in when you exit SHIPX.*

If you are working on an object that has not been checked out, you may chose *Reload & Refresh* to extract the latest version form the database.

2.2 THE SHIPX DATABASE

To open an existing database, locate the database by selecting the **File|Open Database…** menu option (or choose it from the recent database list at the bottom of the **File** menu). To create a new database, select **File|New Database…** and browse to an empty catalog where the database should be created. You will be prompted for a database name (shown at the top level in the Database Browser) and to select wether the database should be multi- or single-user. The main settings of a database can be changed manually at a later stage. Database configuration is discussed in Section 2.2.7.

A SHIPX database is a collection of files organized in a folder hierarchy. The database contains SHIPX data objects stored on files, as well as other files such as input files and result files and other documents that may be located in the file structure. The folder names are not always intuitive, and to access a certain folder in this file structure, it is therefore recommended to open it via the Database Browser (select *Explore* from the right-click context menu). The following sections will give an overview of what is available in a typical SHIPX database.

2.2.1 Fleet

The fleet is a collection of all the ships in the database.

2.2.2 Ships

Each ship in the fleet consists of the ship hull geometry with related data. The ship data includes

- Loading conditions
- Related documents
- Details
    - Principal characteristics
    - Model scale characteristics
    - Hull geometry
    - Lightship weight
    - Arrangement
    - Related Documents

Ship data like geometry, main dimensions and loading condition data are as much as possible *stored* in the database according to the ISO-STEP standard (e.g. AP 216 for ship moulded forms). From the SHIPX Workbench (including the Database Browser), the data are seen through façade-objects in order to make them more easily to read and access.

A number of functions can be activated by right-clicking on the ship in the Database Browser (Figure 2.5 shows the context menu):

- *Edit Hull* gives access to the hull manipulation features in SHIPX where you can modify the hull geometry manually by editing each individual point describing stations, contour

lines and 3d-lines, as well as adding or deleting hull geometry elements. This feature is described in Section 2.4.1.

- *Hull Transformation* gives access to the hull transformation features in SHIPX, described in more detail in Section 2.4.2.
- Principal characteristics can be modified by *Edit Principal Characteristics* in the context menu.
- *Edit Ship Model Characteristics* gives the opportunity to define model scale, ship type (selected from a list), as well as defining text strings to describe appendix, type of turbulence simulator and possible other comments to be included in text reports.
- *Edit Lightship Weight* gives access to the lightship weight input.
- *Edit Structural Characteristics* gives access to the Structural Characteristics input dialog (only relevant if you have access to the Strength Assessment Plug-In).
- *Explore* opens the corresponding directory in the SHIPX database file structure, where different files for the current hull and associated runs are stored. You can also store other documents related to the ship in the `Related documents` folder, where they will be available by clicking the *Related documents* node in the Database Browser.
- From the context menu of the hull it is possible to generate text reports on main dimensions and stability calculations for the design draught (see the open sub-menu in Figure 2.5).
- Ships can be duplicated by selecting *Duplicate*, and deleted by selecting *Delete*.

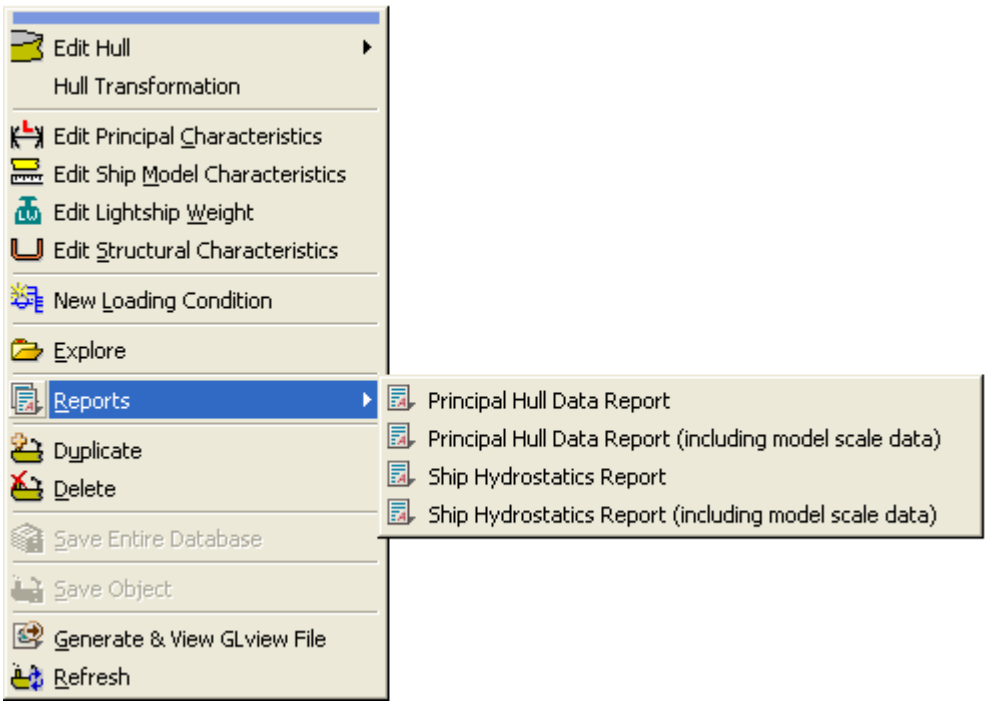


Figure 2.5 Context menu for a ship in the Database Browser

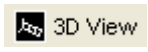
2.2.3 Hull geometry

The hull geometry is defined by stations, 3D-lines and contour lines. SHIPX is not intended to be a drawing tool to draw the hull lines, and the primary source for the hull definition should be through import of a file from a hull design program. The hull lines can, however be modified inside SHIPX (see Section 2.4 for further details on hull geometry manipulation).

Even if it is possible to define hull moulded forms directly in SHIPX, the most practical way is clearly to import the geometry from external programs. The following import formats are currently supported:

- VERES (**.mgf*)
- NAPA (macro available from MARINTEK)
- AutoCad DXF (must include only 3D geometry defined by polylines, no flat drawing)
- AutoShip (**.dra*)
- AutoHydro (**.gf;*.gf1;*.ghf*)
- Shipshape (**.lin*)
- Shipshape project

Please contact MARINTEK if other import formats are required. If you have a file format that describes stations and contour lines, writing an import filter is usually a quite simple task.

In addition to the menu choices in context menu, hull lines can be visualised as a 3D drawing by clicking the 3D View button 

on the command bar, or from the **View|3D View** menu.

2.2.4 Loading conditions

Loading conditions are created by selecting *New Loading Condition* from the *Ship* context menu (see Figure 2.5). Initially, the ship is created with one loading condition: The *Design Loading Condition*. This loading condition is always numbered as loading condition no. 0, and *cannot* be deleted. The dialog for definition of a loading condition is shown in Figure 2.6. This dialog can also be used to modify an existing loading condition (choose *Edit Loading Condition* from the context menu of the relevant loading condition).

The loading condition is defined by a *Loading Condition Number*, selected from a pull-down menu, an *Identification* which typically constitutes DWL, WL1, WL2 etc. and a *Description* which gives possibilities for further description (e.g. ballast draught, fully loaded etc.). *Length of Waterline (LwL)* can be modified (i.e. override the automatically calculated value) by un-cheking the checkbox next to the value, and entering a new value. This can be relevant e.g. when the bulb penetrates the sea surface. Some of the hydrostatic values such as *wetted surface area* and *transom stern area* can also be manually defined in the same way.

Loading conditions can be *deleted*, *duplicated* (copied to the same ship), *copied* (to another ship) or *moved* to another ship. Right-clicking on the relevant loading condition produces a context menu, which shows which reports can be generated for the loading condition.

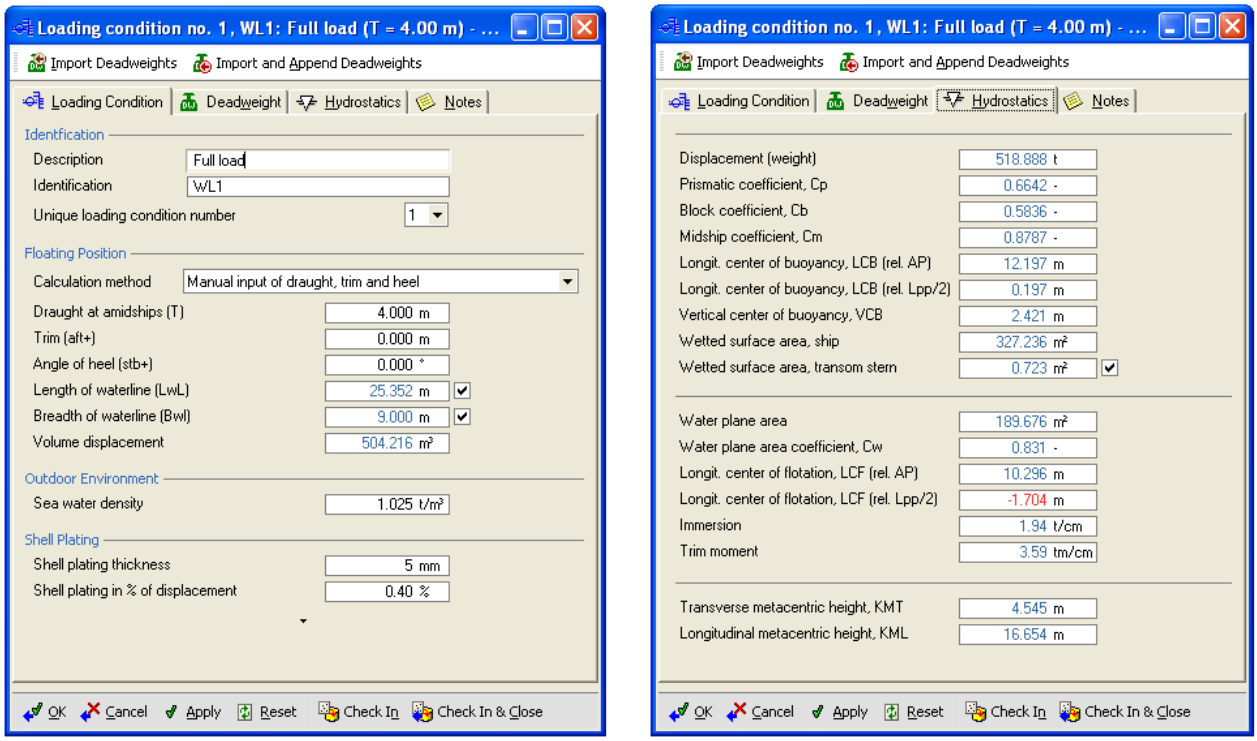


Figure 2.6 Definition of loading condition

2.2.5 Runs

In order to handle input and results, the concepts “calculations”, “analyses”, and “experiments” are all covered by the common concept *Run*. A “Run” might contain both *Input* and *Results*, and these can in turns contain single values, tables with values or tables with objects. In addition, information like date and time, describing text and version number for the data is stored in a run.

Right-clicking on *Runs* in the Database Browser produces a context menu where the user can create new runs of various kinds, depending on the presently available plug-ins in SHIPX. The files associated to each run can be accessed most easily by selecting *Explore* from the right-click menu of the *Results* or *Input* items. That opens a Microsoft Explorer window in the correct directory of the SHIPX file structure.

A run can be *deleted*, *duplicated* (copied to the same loading condition), *copied* and *moved* to other ships/loading conditions.

2.2.6 Common Settings

In addition to store ship hulls, loading conditions, results etc., it is possible to save a set of common settings (default values) for things like water density, temperature, preferred units for speed, trim etc.

Edit Common Settings is located on the *Edit* menu.

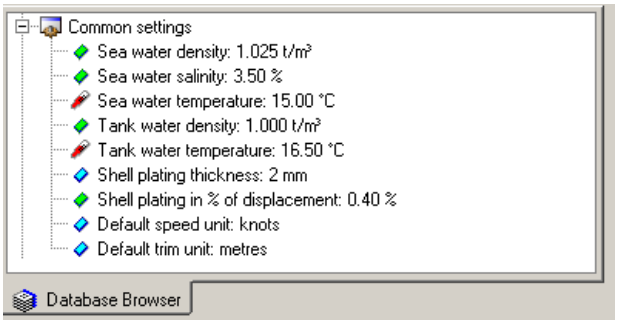


Figure 2.7: Option for specifying default values for some common variables is included in the database.

2.2.7 Database configuration

The SHIPX database may be defined such that all users can work on a common database (multi-user database). It is also possible to work with a single-user database. At present, specification of which database to use is done by locating the top-level folder of the database (this folder contains a file called `root.info`). To open an existing database, locate the database by selecting the **File|Open Database…** menu option (or choose it from the recent database list at the bottom of the **File** menu). To create a new database, select **File|New Database…** and browse to an empty catalog where the database should be created. You will be prompted for a database name (shown at the top level in the Database Browser) and to select wether the database should be multi- or single-user.

To change the properties of the database at a later stage, open the `root.info` file lodated in the database folder. There are two parameters that may be of special interest:

1. To change the name of the database (appearing in the treeview in SHIPX), change the text after the `Name` parameter in the `root.info` file.
2. To change a single-user database to multi-user, change the parameter `IsMultiUserDatabase` to **`True`** in the `root.info` file (and vice versa to change from multi-user to single-user).

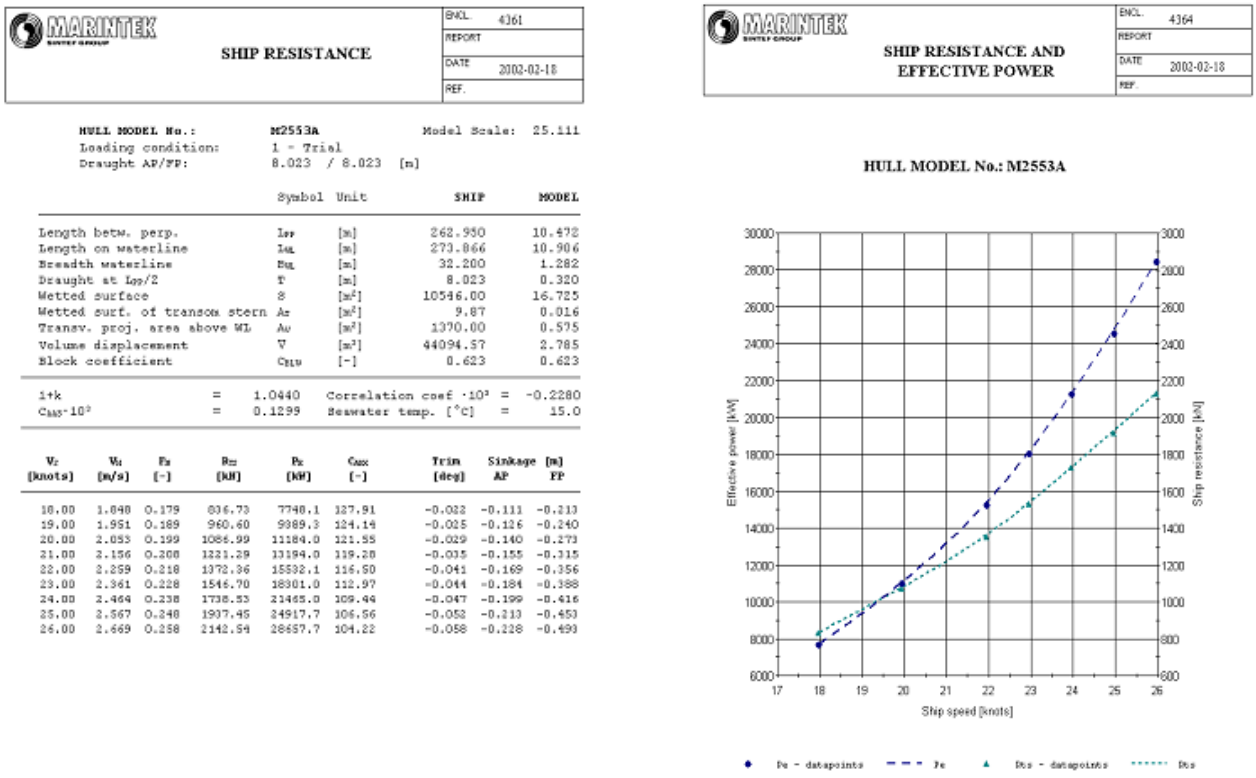
If you wish to move your database to another location, make sure no users are using the database and move the top-level folder (with all its subfolders) to a new location. Afterwards, the database can be opened from the **File|Open Database…** menu option.

2.3 SHIPX WORKBENCH UTILITIES

2.3.1 Report viewer

The report viewer in SHIPX is a stand-alone application, which SHIPX can communicate with directly. Features of the *SHIPX Plot Program* include

- Simple ASCII data files
- Plotting of X-Y scatter plots
- Histograms
- Contour-plots
- Polar-plots
- Formatted text reports
- Direct export to Microsoft Word™
- Using Acrobat PDF Writer, the reports can be exported directly to PDF
- Company logo in plot header (see Section 1.4 page 1.5 for details)



MARINTEK

SHIP RESISTANCE

ENCL. 4361
REPORT
DATE 2002-02-18
REF.

HULL MODEL No.: M2553A Model Scale: 25.111
Loading condition: 1 - Trial
Draught AP/FP: 8.023 / 8.023 [m]

	Symbol	Unit	SHIP	MODEL
Length betw. perp.	L_{PP}	[m]	262.950	10.472
Length on waterline	L_{WL}	[m]	273.866	10.906
Breadth waterline	B_{WL}	[m]	32.200	1.282
Draught at $L_{PP}/2$	T	[m]	8.023	0.320
Wetted surface	S	[m²]	10546.00	16.725
Wetted surf. of transom stern	A_T	[m²]	9.87	0.016
Transv. proj. area above WL	A_V	[m²]	1370.00	0.575
Volume displacement	∇	[m³]	44094.57	2.785
Block coefficient	C_{BLN}	[-]	0.623	0.623

1+k = 1.0440 Correlation coef $\cdot 10^3$ = -0.2280
$C_{AAS} \cdot 10^3$ = 0.1299 Seawater temp. [°C] = 15.0

V_S [knots]	V_S [m/s]	F_N [-]	R_{TM} [kN]	P_E [kW]	C_{AAS} [-]	Trim [deg]	Sinkage AP [m]	Sinkage FP [m]
18.00	1.848	0.179	836.73	7740.1	127.91	-0.022	-0.111	-0.213
19.00	1.951	0.189	960.60	9389.3	124.14	-0.025	-0.126	-0.240
20.00	2.053	0.199	1086.99	11184.0	121.55	-0.029	-0.140	-0.273
21.00	2.156	0.208	1221.29	13194.0	119.28	-0.035	-0.155	-0.315
22.00	2.259	0.218	1372.36	15532.1	116.50	-0.041	-0.169	-0.356
23.00	2.361	0.228	1546.70	18301.0	112.97	-0.044	-0.184	-0.388
24.00	2.464	0.238	1738.53	21465.0	109.44	-0.047	-0.199	-0.416
25.00	2.567	0.248	1937.45	24917.7	106.56	-0.052	-0.213	-0.453
26.00	2.669	0.258	2142.54	28657.7	104.22	-0.058	-0.228	-0.493

MARINTEK

SHIP RESISTANCE AND EFFECTIVE POWER

ENCL. 4364
REPORT
DATE 2002-02-18
REF.

HULL MODEL No.: M2553A

Figure 2.8 Example plots and reports from the SHIPX Plot Program

A full description of the supported file formats can be found in the SHIPX Plot Program online help.

2.3.2 Process Manager

To be able to serve as a workbench for computationally intensive applications, SHIPX has a built-in *Process Manager*, where all computations show up. Figure 2.9 shows a screen shot of the Process Manager. The start time, percentage complete, and estimated remaining time are shown, and the log for each process can (and should) be studied. Jobs might also be cancelled or aborted using this manager, and the priority of each process may be changed. Note that cancelling a job might take some time, since some computation programs will run until they reach the next break point. This is always the recommended way of stopping a process, since aborting a process might cause the system to become unstable.

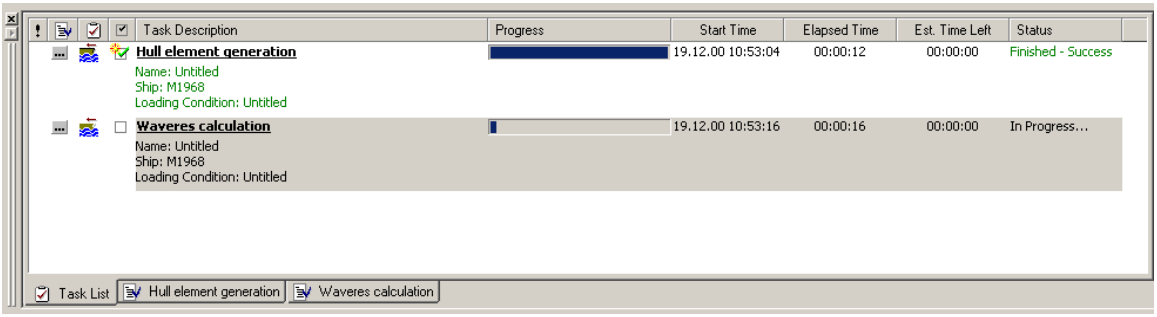


Figure 2.9: The Process Manager shows active background calculations in the workbench.

2.3.3 Log File

SHIPX creates a log-file each time it is started. The log file is always created using the same name, so that the log file from the previous SHIPX session is deleted when a new session is started. The log file is named:

`c:\Documents and settings\<username>\shipx\SHIPX.log` on win2000/XP
`c:\winnt\Profiles\<username>\shipxSHIPX.log` on winNT

This log file is of no use to the average user, but might be useful for debug purposes, and should always be included when reporting errors.

2.3.4 Automatic Update

To ensure that all users apply the same, latest version of SHIPX, the workbench has an automatic update function that may be set up to run automatically at start-up. SHIPX is able to update itself either via Internet (ftp/http), or via Intranet (common disk area)[1]. The program will give notification if new versions of Plug-Ins or components become available. If the user accepts the update, the program will update itself automatically. For external users, this means that the program will use an Internet connection to contact the SHIPX website at MARINTEK.

[1] The actual settings of where ShipX should look for updates is set in the `Launcher.ini` file in the `\Program Files\ShipX\bin` folder. The average user should not need to change the settings here, as this is set automatically by the ShipX Configuration Manager.

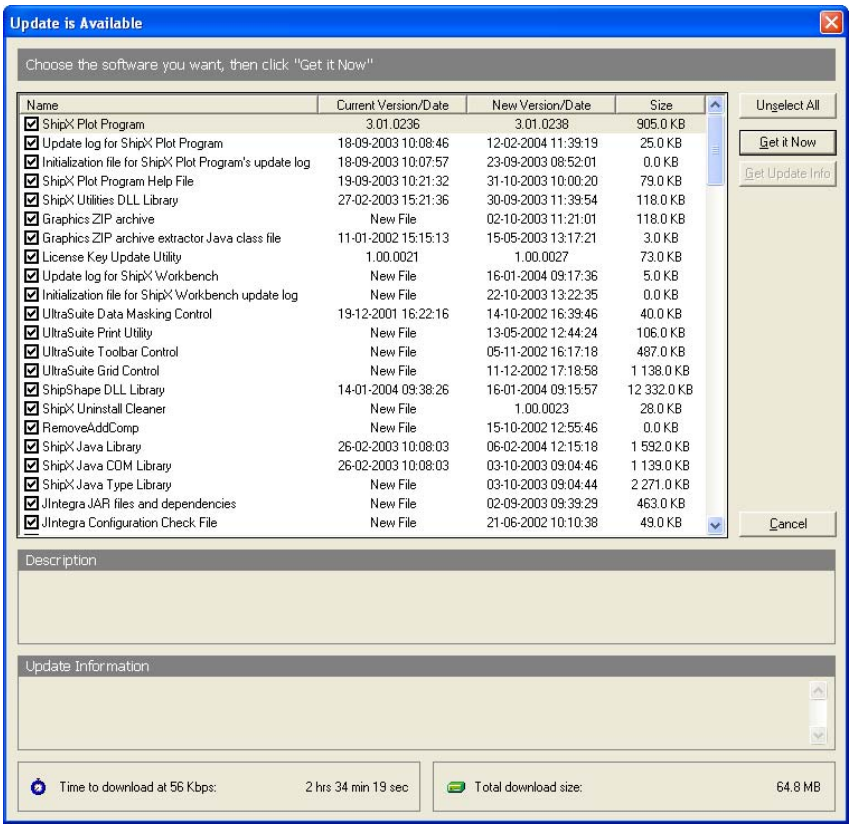


Figure 2.10: Automatic update utility that shows up if new or updated components become available.

2.3.5 Program Options

Some program settings can be accessed through the *Options Dialog*. This dialog can be accessed through the **Tools** menu. Here, the user interface can be customized (colour settings etc.) and special settings regarding Plug-Ins and other Tools (such as the Auto Update Utility) can be accessed. The available settings will vary depending on which Plug-Ins you have available.

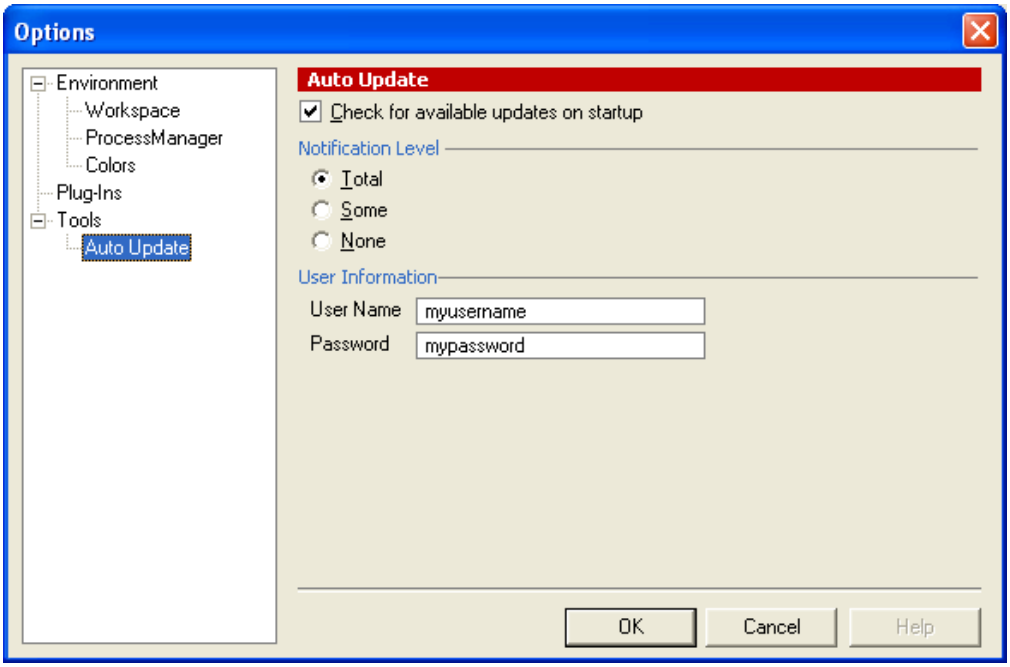


Figure 2.11 Options Dialog

2.4 HULL GEOMETRY MANIPULATION

2.4.1 Edit hull

Some basic functionality for manipulating hull geometry is included in SHIPX. In addition to import and export of geometry files, stations, contours and 3D-lines might be moved, added, and deleted. The hull lines can be edited by the tools in the **Edit Hull** menu, which can by found by right-clicking the hull geometry in the Database Browser, clicking the  button on the toolbar or selecting the **Edit|Edit Hull** menu. Editing includes adding and deleting stations, contours and 3D-lines, as well as editing the points on each curve.

This makes it possible to fix errors and do minor changes to the hull lines. It is also in principle possible to define the entire geometry, but this process is rather tedious in most cases, since it involves entering every point on every station and contour. Figure 2.12 shows and example from the Hull Input dialog.

When a station is added, the shape of the station is created by interpolation between the station before and after the new station. This interpolation can be chosen to be linear or spline. It is recommended to be careful with using the spline interpolation option as it sometimes creates unexpected results.

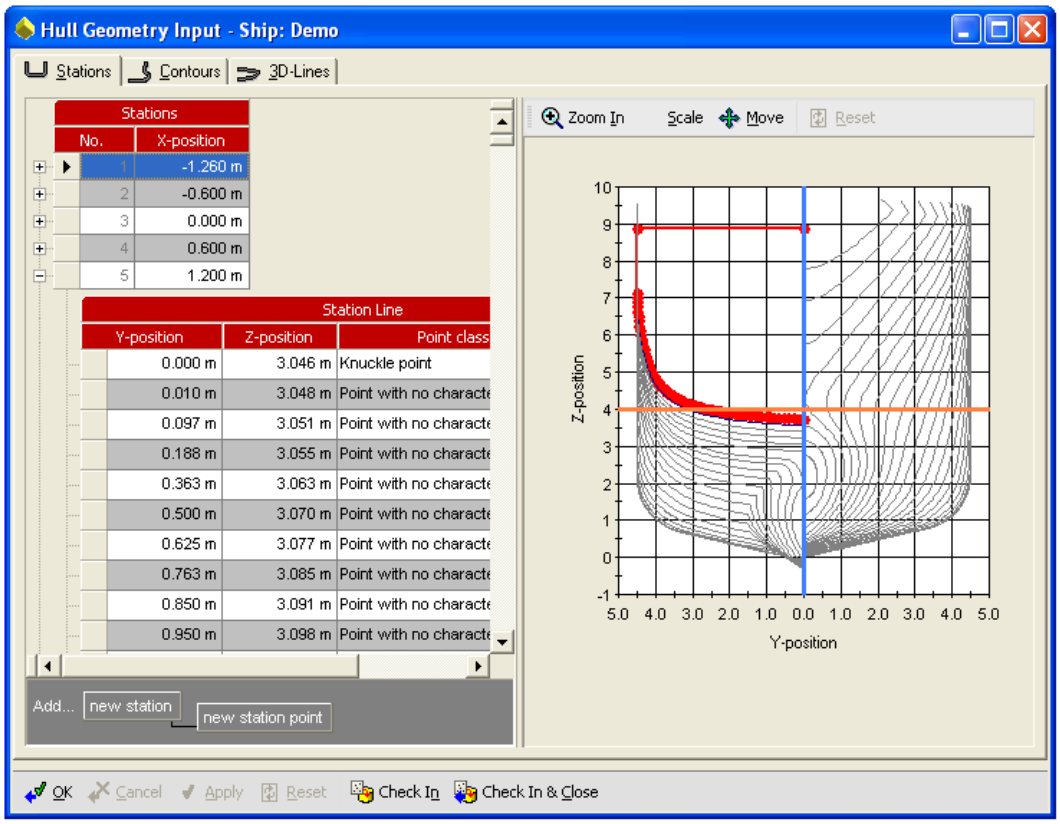


Figure 2.12: Stations, contours and 3D lines can be modified using the Hull Geometry Input dialog.

2.4.2 Hull transformation

Global transformations of the hull lines can be performed by using the *Hull Transformation* tool. The Hull Transformation tool can be started by choosing **Hull Transformation** from the menu found by right-clicking the hull geometry in the Database Browser or selecting the **Tools|Hull Transformation** menu. Hull transformation includes the following options:

- *Scaling* by changing the main characteristics
- *Shape change* by changing the prismatic coefficient and/or LCB
- *Elongation*
- *Filter stations* (to reduce the noumer of stations or points per station)
- *Filter contours* (to reduce the number of points on the contour lines)

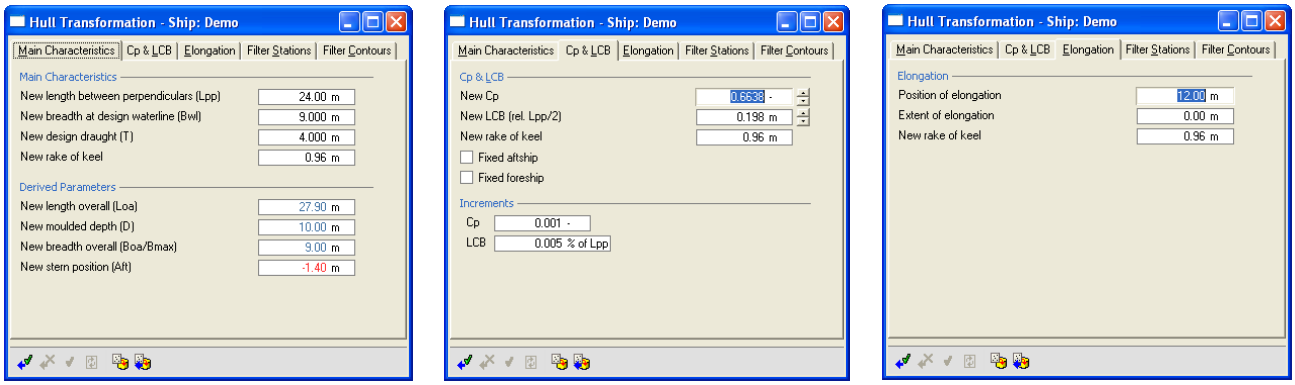


Figure 2.13 Hull Transformation Tool

2.5 SHIPX PLUG-INS

Table 2-1: Available SHIPX Plug-Ins.

Plug-In	Function	Basic	Optional
XIS Link	Connecting the workbench to the SHIPX database. Works as a link between the Plug-Ins and the database.	•	
Hull Manipulation	Hull manipulation module (add/change/delete stations contour lines and 3-D lines), as well as geometric scaling.	•	
Graphics	Graphical presentation of the hull lines in 2D and 3D.	•	
File import/export filters	Import of hull geometry from various formats: • VERES file format (*.MGF) • AutoShip (*.DRA) • AutoHydro (*.GF) • AutoCAD (*.DXF) • ShipShape (*.LIN + projects) • NAPA files exported with a special NAPA macro available from MARINTEK (*.N2X). Export to VERES.	•	
ShipShape file operation	Import of hull geometry + data from ShipShape project files.	•	
Basic ship input	Input of ship main data and loading condition.	•	
Basic Propulsor input	Input of propeller-, pod- and duct data		•
Waveres	Calculation of wave resistance.		•
Vessel Responses	Calculation of motions and global loads using VERES.		•
Animation Lab	Animation of ship motions and sea state		•
WaveLand	Calculation of wave impact loads on bow and deck structures		•
Report Generator	Report generator for performance tests in MARINTEK laboratories		•
Ship Speed & Powering	Tool to predict speed loss in waves due to added resistance and loss of propulsive efficiency.		•
Station Keeping	Station keeping of a ship in waves, wind and current. *(under development)*		•
Manoeuvring	Simulation of manoeuvrability of a ship (SIMAN).		•

Table 2-2: Future SHIPX Plug-Ins.

Plug-In	Function	Basic	Optional
EmPower	Empirical resistance calculation (Planned as an extension of Ship Speed & Powering).		•
Slamming	Slamming pressure and forces on 2D (ship) sections (Slam2D).		•
Panel Generator	Panel generator to generate 3D panels on the wetted surface of the hull for hydrodynamic calculations wit 3D panel method codes. *(under development)*		