Appendix A – Planning, Ordering, Installing, Getting Help

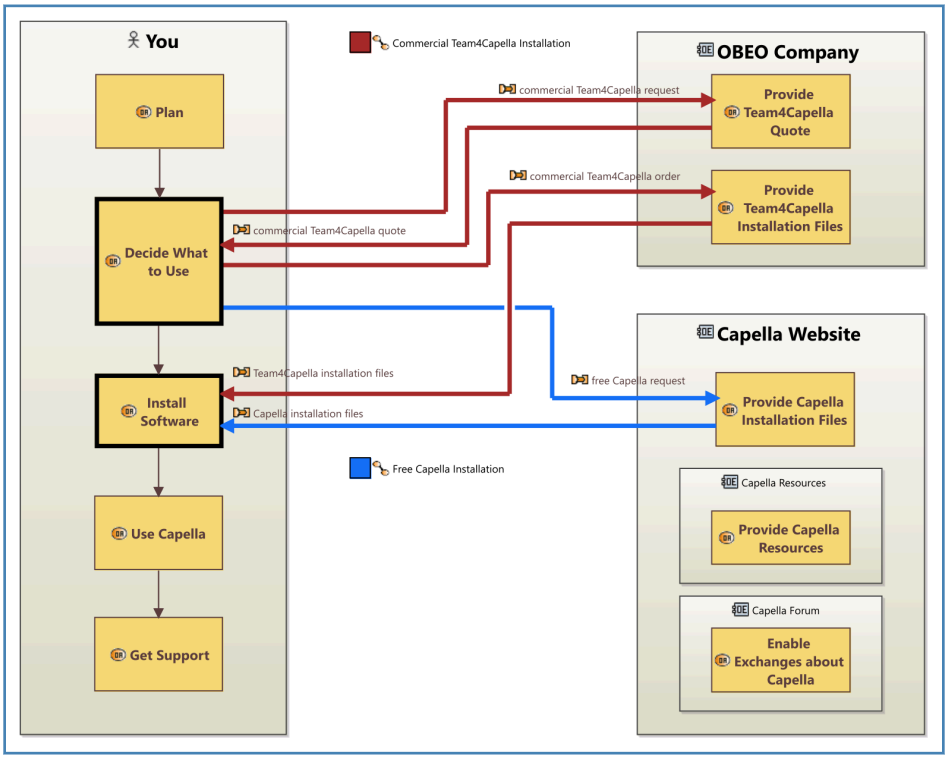


Figure A-1 – Overview: planning, ordering, installing, getting help

Figure A-1 shows the general flow of topics which are covered in the following sections.

1) **Planning –** *Capella* is an engineering tool, not a social media application. Installing and learning to use *Capella* will involve a significant commitment of time and effort. You will want to do some planning before you get started.
2) **Free Version –** All things considered, the most practical approach to getting started will be to download and install the free open source version from the *Capella* website.
3) **Commercial Version –** Once you have completed your first pilot project and feel the need for a multiuser version with several people modeling simultaneously on a bigger project, the most straightforward approach will be to contact the Obeo company.
4) **After Installation –** We have also included some information about routine needs after installation such as finding online help and asking questions to the community.

Note that the screen captures in the following sections are current for *Capella* version 6.1.0 and *Capella* and Obeo websites as of August 2021. Both the tool and websites are subject to change.

Planning

Free Capella Open Source Version or Commercial Team4Capella Version?
The first important decision you must make is whether to use the free single-user open source *Capella* version that you can download directly from the *Capella* website, or the multiuser commercial version available from the Obeo company.

We recommend that you start on a pilot project with the free version, and after that, if you wish to model in a multiuser mode on a bigger project, you can contact Obeo to buy the commercial version.

What to Buy

As mentioned previously, we recommend that you start by downloading and installing the free open source version from the *Capella* website:

https://www.eclipse.org/capella/download.html

All the screen captures in this book were made using the free open source version.

If you need information on the multiuser commercial version, Obeo provides an overview of the *Team for Capella* tool here:

https://www.obeosoft.com/en/team-for-capella

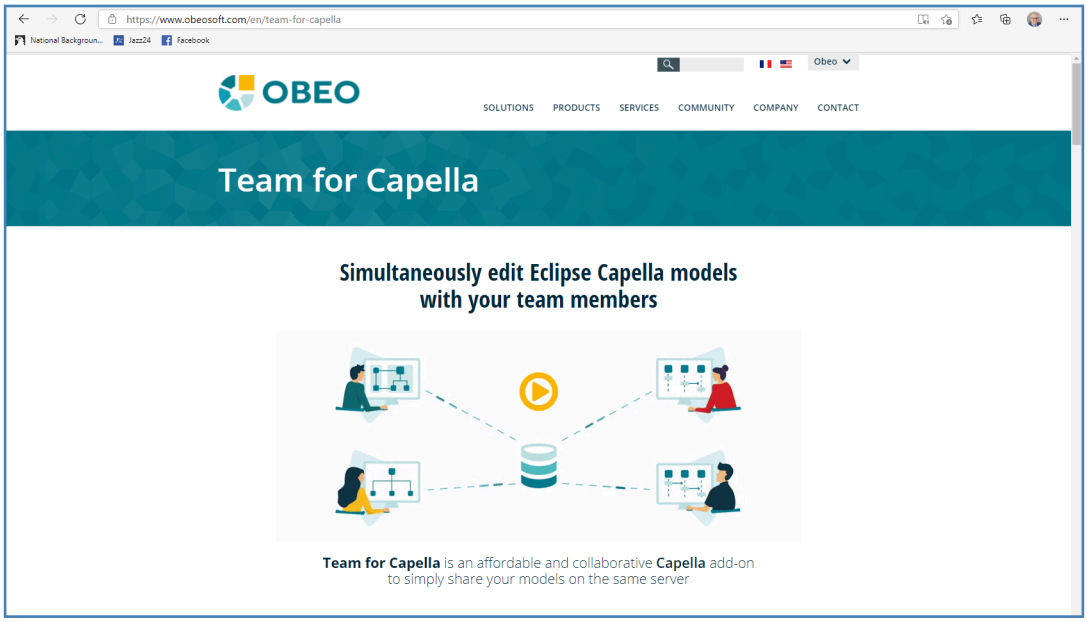


Figure A-2 – Team for Capella

Either version will work fine for learning Arcadia. Beginners may appreciate the cost-free open source version and its ease of installation.

Getting a Price

Obeo does not directly publish a full price list on its website. The most straightforward approach to investigate pricing is to go to *Team4Capella* product overview website, scroll down, and click on the "Request a Quote" link.

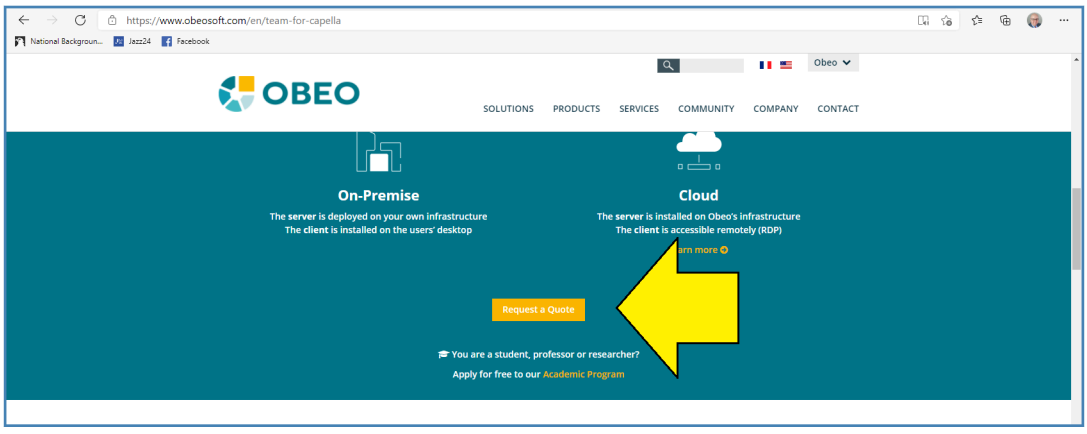


Figure A-3 – Scroll down and click the orange box to request a quote

Windows Environment

The installation prerequisites for *Capella* can be found on the *Capella* GitHub repository here:

https://url4ap.net/Capella-Prereqs

Choosing an Installation Directory

Capella does not come with a standard installer. You will need to decide in advance where you want the program files to be stored on your hard drive.

Warning: *Capella* is based on the *Eclipse* platform. The folder hierarchy and namespace of the *Capella* and *Eclipse* plugins are quite long. Because of Windows folder path length restriction, avoid entering a long installation location. If the path is too long, *Capella* may fail to open some files. Also, the *Eclipse* platform has historically had some issues with path names containing spaces. Choosing an installation directory such as:

"*C:\Program Files\Capella*"

may cause unpredictable errors such as problems with the Description Editor. We recommend: "*C:\Capella*" or even: "*C:\CP*"

Deciding Where to Put Your Project Files

Capella is based on the *Eclipse* platform. As such, when you start the tool, you will be prompted to select your **workspace**. The workspace is the *Eclipse* central hub for user's files. Different types of projects such as *Capella* projects and Java projects can share the same workspace. Workspaces are used for builds, version management, sharing, and resource organization. Like folders, projects map to directories in the file system. A location in the file system is specified during the project creation.

Note that *Eclipse* platform and some plug-ins use the workspace to store global settings and preferences in a hidden sub-folder ".metadata".

The default workspace location that *Capella* will propose when you first start the tool will be a subdirectory called "workspace" inside the *Capella* program directory. This default is understandable in that the tool knows nothing about the layout of the rest of your hard drive. That having been said, storing your project data in the same directory as the tool is usually not a good idea.

For many users, the standard Windows "*Documents*" directory may be a good choice. However, the management of a disk folder structure is beyond the scope of this book. Nevertheless, we recommend that you store different *Capella* projects in different workspaces, as *Capella* preferences are valid for a complete workspace, not for one project. For this reason, we will use a different directory as workspace for each chapter of this book.

Configuration Management

If you are working alone on a single personal computer, you won't have to think much about configuration management beyond any normal backups you may routinely create. However, if you are going to work in a team and you want to manage your projects with a source code control system such as Git, you will find that there is a certain amount of complexity involved. You will need to think about two configuration management problems:

1) **Managing the Tool –** Are you going to allow each developer to set up his own configuration of add-ons? Are you going to force the entire team to use a common setup? For a discussion of the ins and outs of this topic see:
https://url4ap.net/Capella-CM-Tool

2) **Managing the Workspace –** As mentioned above, the *Eclipse* platform implicitly stores an assortment of information in metadata files. Sharing these is tricky. For a discussion of the ins and outs of this topic see:
https://url4ap.net/Capella-CM-Workspace

Installing

Now we are ready to install *Capella*. The first stop is the main download page:

https://www.eclipse.org/capella/download.html

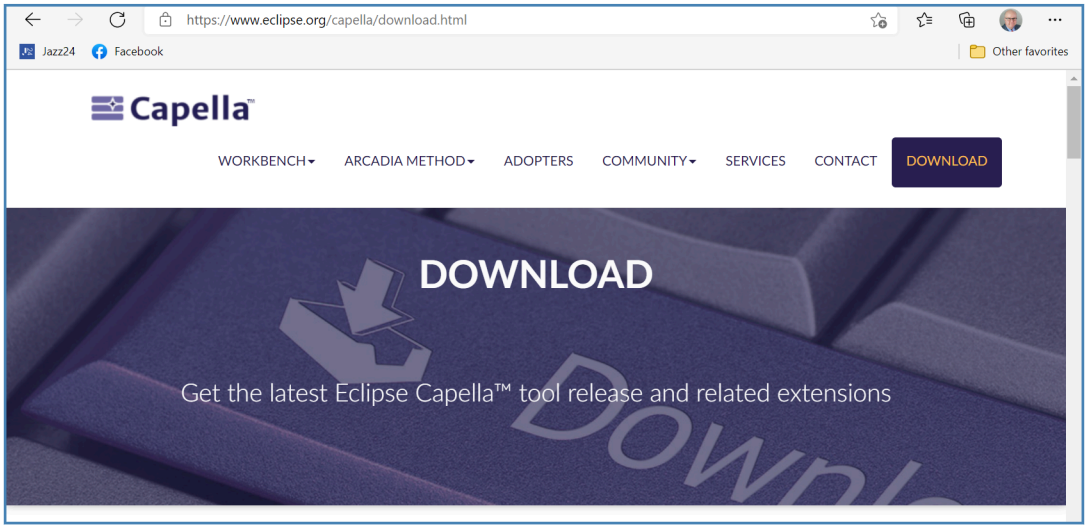


Figure A-4 – Install Capella download page

Download Software

To download *Capella*, scroll down until you find an orange "GET CAPELLA..." box for the latest version of the tool. Click on this box to begin the download.

The installation file is fairly large (about 0.7GB) and may take a while to download, depending on the speed of your local internet service. [1]

Install Software

Before installing the downloaded software, you may want to review the supplementary information on the main download page. Simply scroll down to the next selection below the download link.

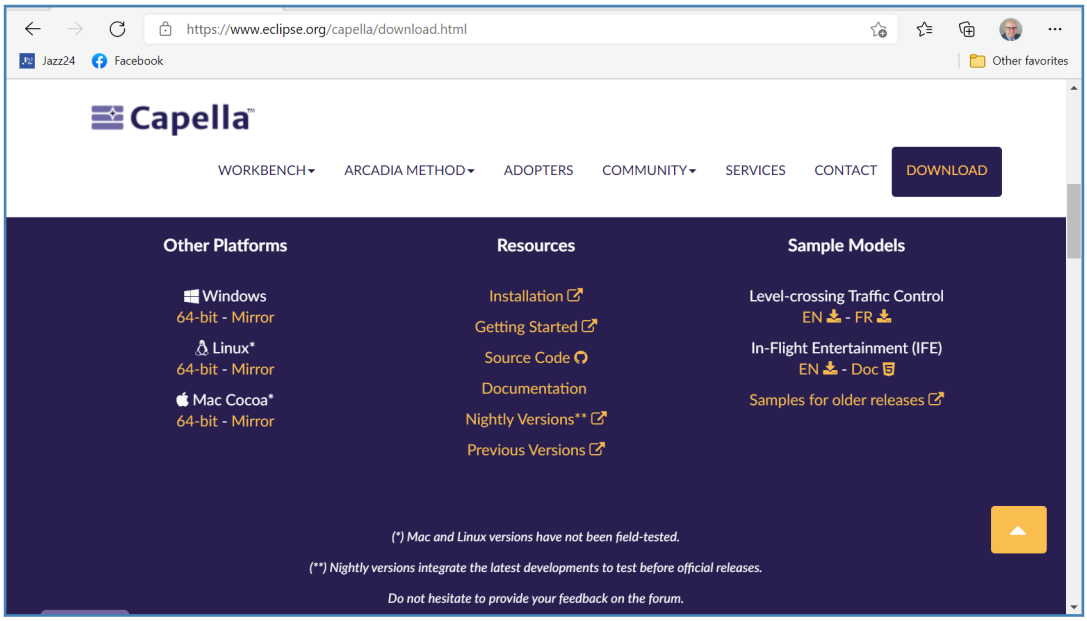


Figure A-5 – Capella additional installation information

In addition to the download link, this section of the main download page contains a lot of useful information. For instance, you can choose to download Linux or Mac versions. You can also download previous versions. If you are adventuresome, you can download the advanced nightly versions. You even have access to the source code. Additional sample models are available as well.

The "Installation" link leads you to a GitHub page with prerequisites mentioned above. You will also find information about installing previous versions there.

Create the installation directory that you planned for in in *Choosing an Installation Directory* on page 4 and unzip the contents of the downloaded file to that directory.

[1] The speed of the hosting server does not seem to be a concern. David Hetherington has fiber-to-the-home service in Austin, Texas and was able to download the file in about 30 seconds.

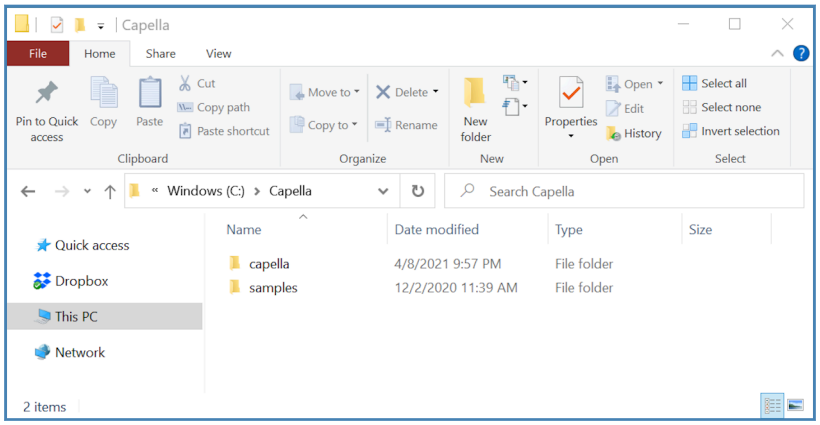


Figure A-6 – Capella installed

Since there is no installation program, if you would like a shortcut on your desktop, you will need to create it manually.

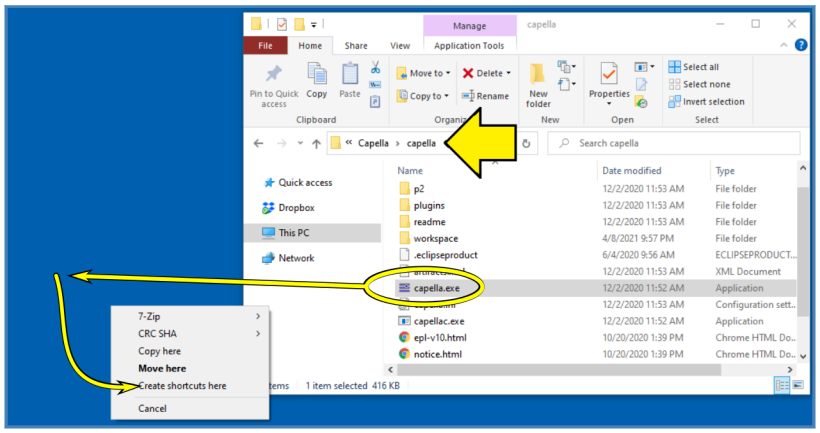


Figure A-7 – Right-click and drag capella.exe to the desktop to create a shortcut

In the *Capella* installation directory, you will find a subdirectory "capella". In this subdirectory, find the file "capella.exe". Right-click on this file and drag it to the desktop. When you release the right mouse button, a context menu will appear that will allow you to create a shortcut.

Installing Add-Ons

A number of free and commercial add-ons are available for *Capella*. The main site for such add-ons is:

https://www.eclipse.org/capella/addons.html

There are two general approaches for installing add-ons:

- *Eclipse* update sites

- "dropins"

We recommend dropins as they are simpler to install and configure.

The configuration of add-ons can be somewhat complicated if multiple users are involved. If you are interested in making use of add-ons, we recommend that you read the detailed instructions and guidance provided here:

https://url4ap.net/Capella-Add-On-Configuration

After Installation

Routine Software Updates

Capella is not updated automatically. Unlike some other Windows applications or applications that might run on your smartphone, there is no program update function in *Capella*. When a new version of the tool is released, you simply download the new version and unzip it. Note that you can maintain multiple parallel versions on your system simply by installing them in different directories.

Generally, there is a major release each year with one minor release sometime during the year. The best way to stay abreast of updates is to participate in the community as described in *Contact Capella Community* on page 17.

Configuring for Unicode

If you need to include East Asian text (Japanese, Chinese, or Korean) in your model, you will need to perform a few configuration steps on *Capella* first.

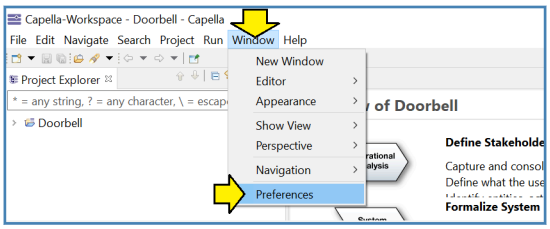


Figure A-8 – Open preferences

From the top menu bar select "Window" and then "Preferences"

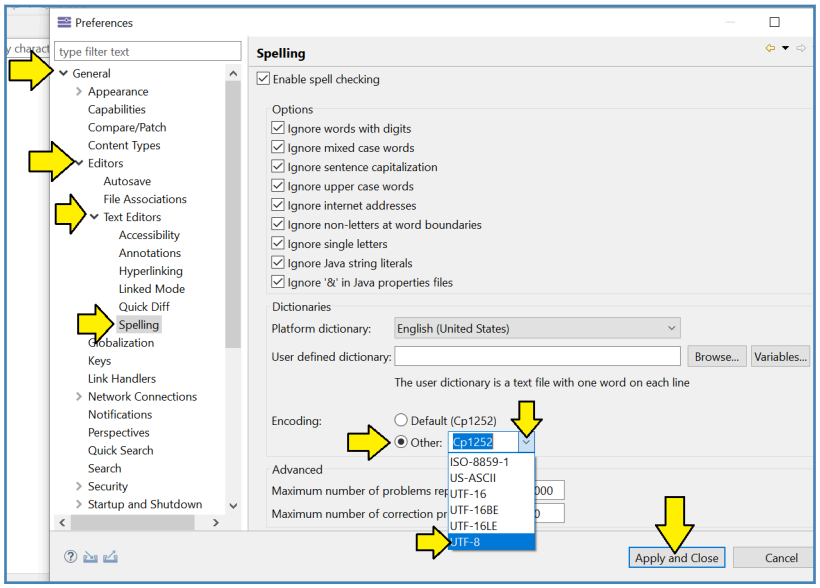


Figure A-9 – Open preferences

1) Expand "General".
2) Expand "Editors".
3) Expand "Text Editors".
4) Select "Spelling".
5) *Capella* defaults to the Windows Latin-1 codepage 1252. (2)
6) Deselect "Cp1252" and select "Other:"
7) Pull down the menu and select "UTF-8". (3)
8) Click "Apply and Close".

(2)CP 1252 was last updated by Microsoft for Windows 98 to include the Euro symbol. This codepage only covers English, French, Spanish, and German. This codepage has not been in common use by Windows itself or web pages on the internet for 20 years or so. You really probably don't want to be using CP 1252 for English, French, Spanish, or German anymore either.

(3) UTF-8 is a method of encoding that preserves 7-bit ASCII compatibility for plain English and punctuation at the cost of using two bytes per special European character, three bytes per East Asian character, and four bytes for some special supplementary characters. In this manner, UTF-8 can encode the full range of human text languages in the Unicode standard while maintaining (at least English) backward compatibility with the decades of existing English language text data and software. UTF-8 is now the dominant codepage for the worldwide web.

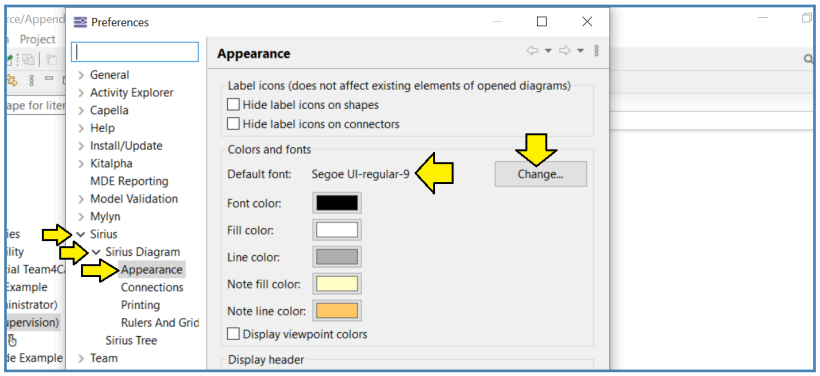


Figure A-10 – Set font if desired

Capella comes with the user interface font set to "Segoe UI". This font seems to cover at least Japanese and European languages as well as common symbols and emojis. However, if you would prefer to use another font (perhaps MS Mincho for Japanese) the UI font can be set in the "Appearance" panel in the "Sirius" section of the preferences menu.

In the examples files directory *Examples\Appx_A_Ordering_Installing* you will find a small example model containing a sample diagram using Unicode characters.

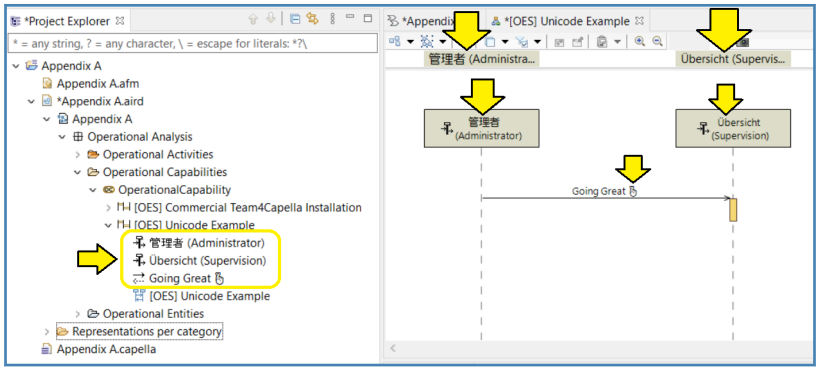


Figure A-11 – Example of model with Unicode characters

In the example model, we have:

- a Japanese administrator "管理者" ("kanrisha");
- who is sending a status message: "Going Great";
- to the somewhat nebulous "Übersicht" ("supervision") in Germany.



Figure A-12 – Emoji

If we look carefully at the status message, however, we see that our administrator is less than entirely confident of the status and hence the message includes the emoji "fingers crossed". (4)

Archiving and Importing Capella Projects

Saving a project that you are going to stop working on for a while is slightly more complicated in *Capella* than some other tools because of the underlying *Eclipse* platform. It is not quite as simple as saving and restoring a simple file. The entire file structure as well as the *Eclipse* metadata need to be saved together. For this purpose, we will need to create an **archive file** of the project workspace.

Exporting to an Archive File

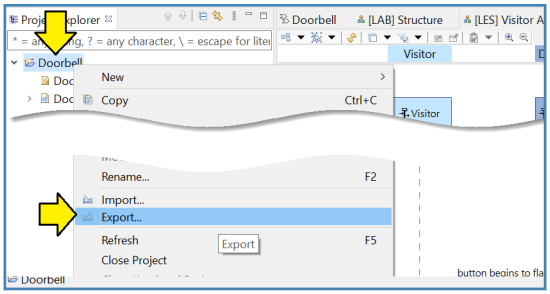


Figure A-13 – Export the project

Select the project you would like to archive in the project explorer, right-click, and select: "Export..."

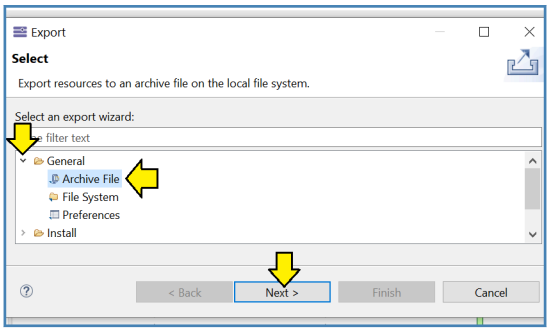


Figure A-14 – Select Archive File

In the next panel, expand "General" and select: "Archive File". Click: "Next".

(4) The emoji "fingers crossed" is Unicode Ü. See: https://emojipedia.org/hand-with-index-and-middle-fingers-crossed/

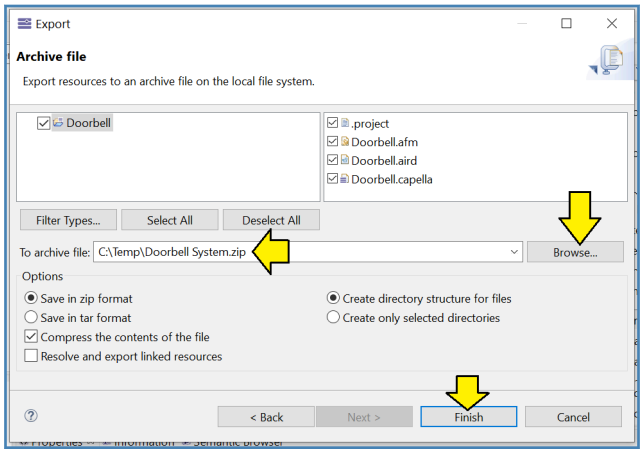


Figure A-15 – Set filename and finish

In the next panel, browse to the target directory, set the filename for the archive file, and click: "Finish".

Deleting a Project from the Workspace

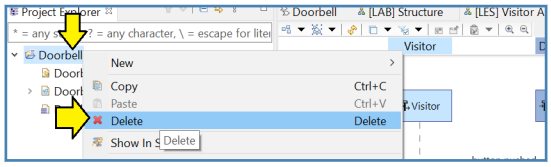


Figure A-16 – Delete project from workspace

In order to remove a project from your workspace, select the project you would like to remove in the project explorer, right-click, and select: "Delete".

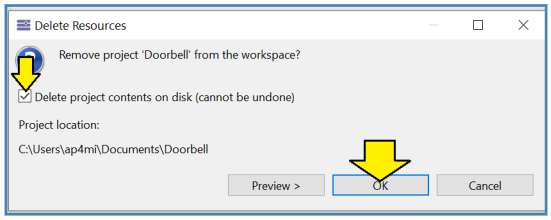


Figure A-17 – Decide whether to delete files on the disk

In the next panel, you will be presented with an option to delete the working files on the hard disk. In most cases, doing so is probably a better idea. Create an archive file. Save it to a secure location. Don't leave old working files on your disk. After you have decided whether or not to delete the working files, click: "OK".

Importing from an Archive File

Importing an archived file (such as one of the example *.zip files for this book) can be a bit tricky. *Capella* offers a somewhat confusing selection of different paths that all look similar, but do not all produce the result you are expecting, namely that *Capella* will be back to where it was when you archived and deleted the project previously. Follow these steps carefully and you should end up where you want to go.

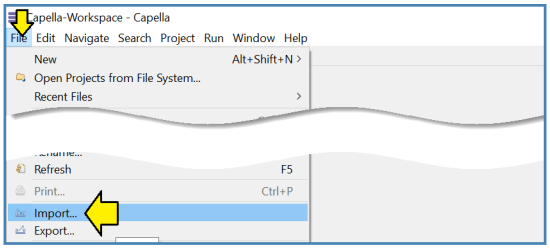


Figure A-18 – Select import project

The first step is fairly straightforward. Select "File" and then "Import..."

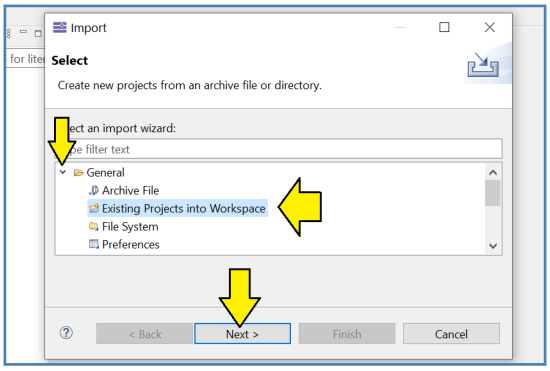


Figure A-19 – Select existing projects

Expand the "General" category and select "Existing Projects into Workspace". Click "Next".

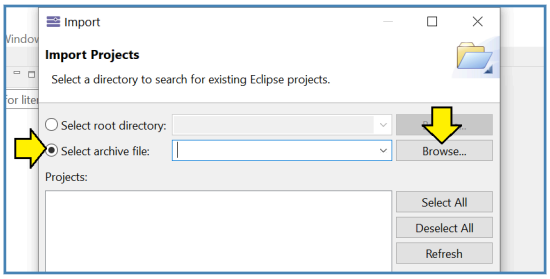


Figure A-20 – Click the button for select archive file

Click the radio button for "Select archive file:" and then "Browse..."

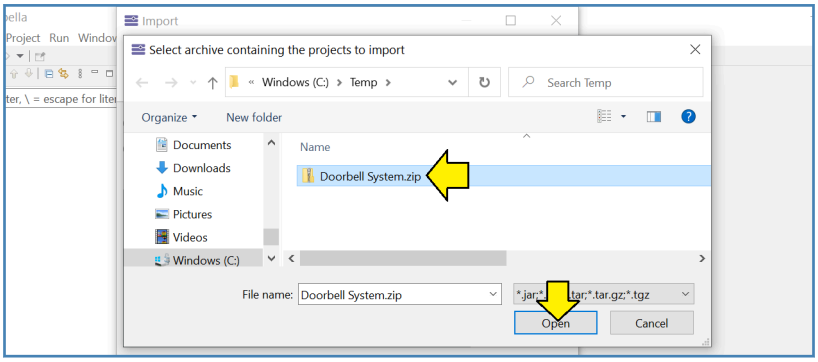


Figure A-21 – Select file and open

Navigate to the archive file, select it, and click "Open".

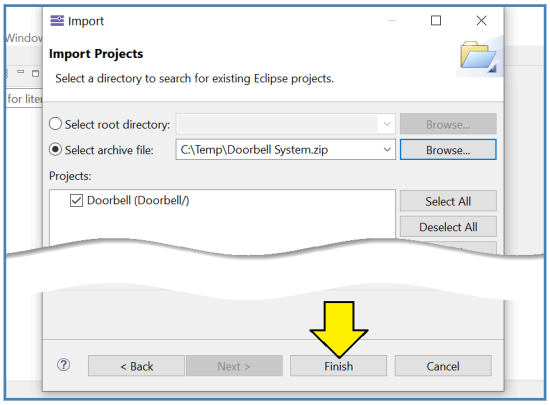


Figure A-22 – Click Finish

Click "Finish".

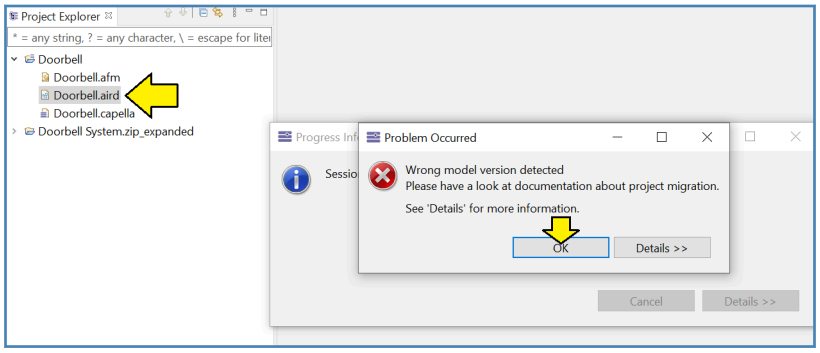


Figure A-23 – Wrong model version warning

If the version of the model in the archive is the same as your current installation of *Capella* you can open the model by simply double-clicking on the *.aird file.

If the model was archived from a previous version of *Capella*, you will need to migrate the model to the current version first. Fortunately, the migration procedure is quite easy.

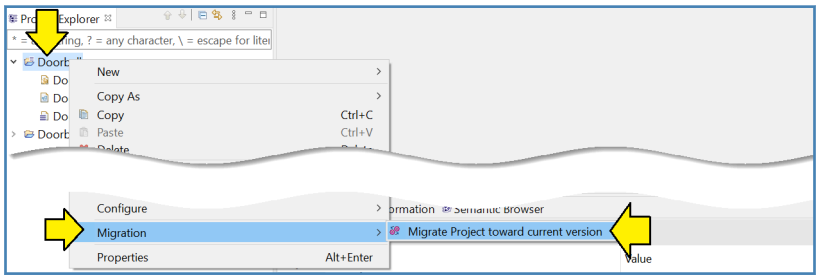


Figure A-24 – Migrate the model

Select the model, right-click and select "Migration" and then "Migrate project toward current version".

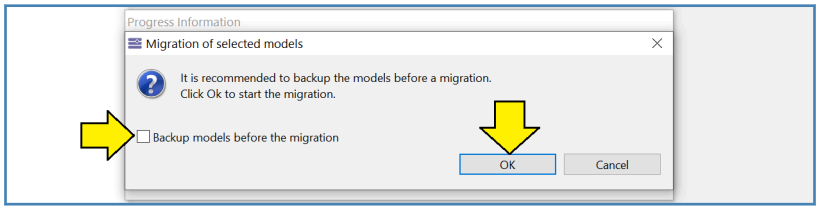


Figure A-25 – Be sure to deselect backup models

By default, in the next panel *Capella* will have an option selected to back up the models before migration. You don't need this option as you already have an archive file. If you leave this option selected, the migration procedure will clutter your model with unneeded backup copies. Clear this selection and click "OK".

After migration finishes, you can open your imported model by double-clicking on the *.aird file.

Capella Online Documentation

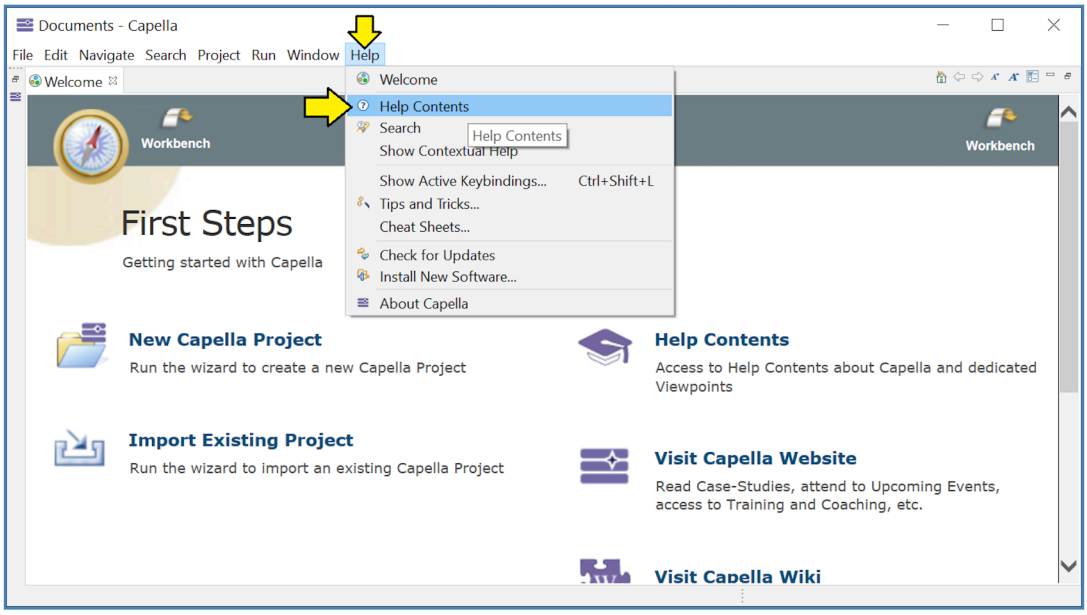


Figure A-26 – Opening Capella online help

Capella contains extensive online help which can be easily accessed by clicking on "Help" and then "Help Contents".

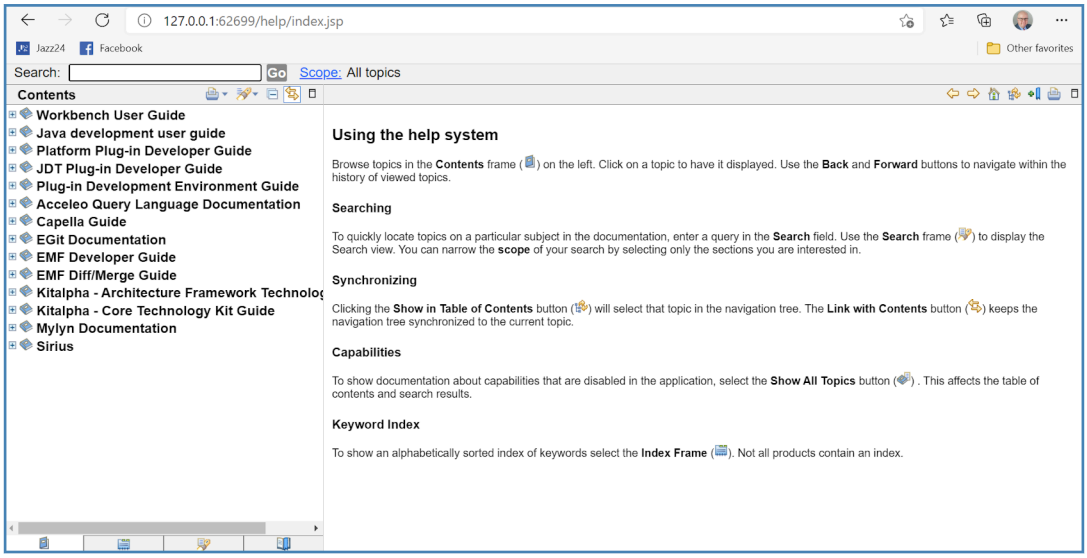


Figure A-27 – Capella help in the browser

The online Help will open in a web browser. The most informative part is the "User Manual".

Contact Capella Community

The best place to get in touch with other *Capella* users and experts is through the Capella Forum:

https://forum.mbse-capella.org/

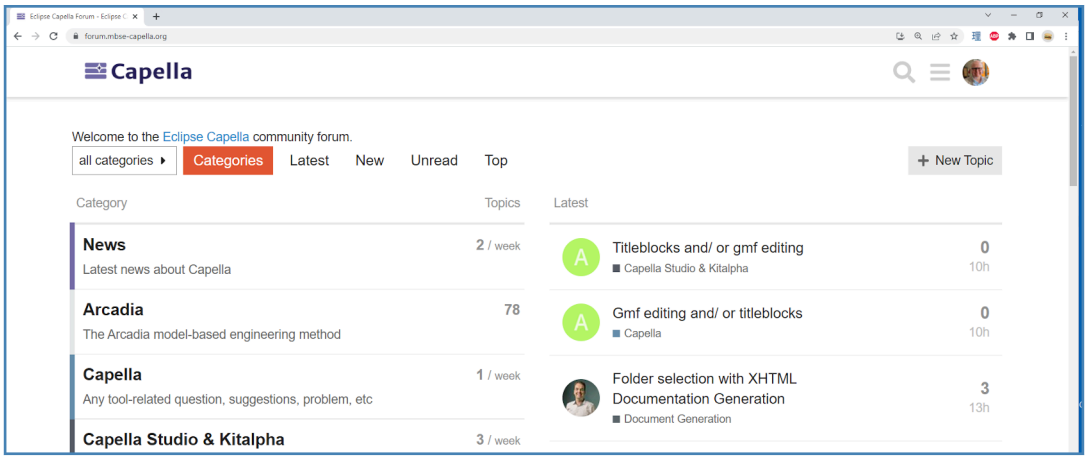


Figure A-28 – The Capella forum

Capella YouTube Channel

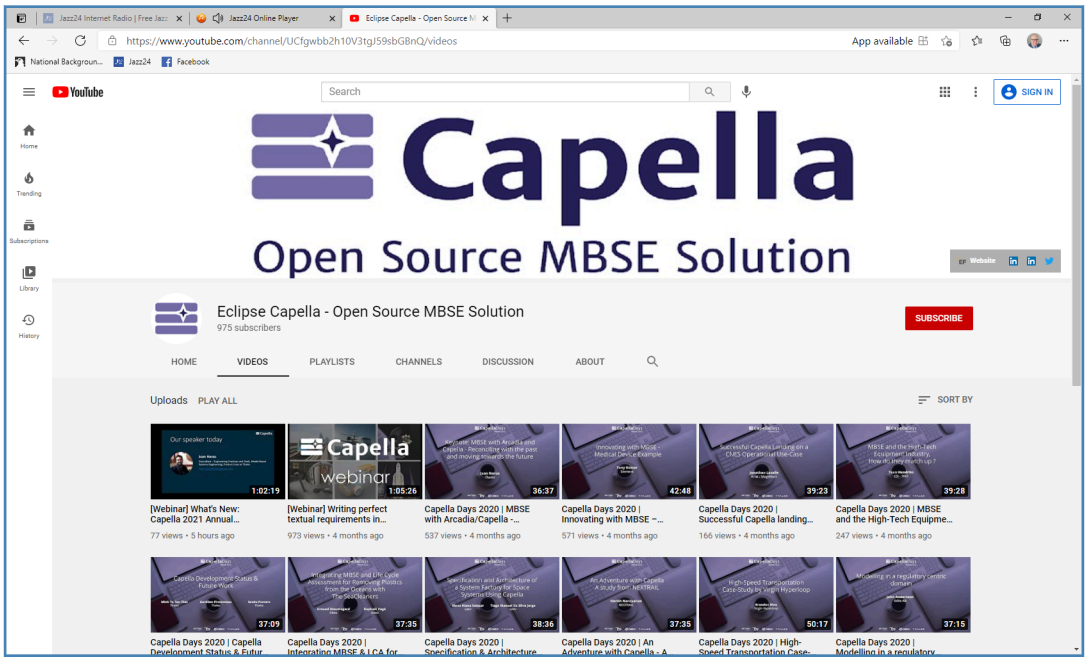


Figure A-29 – Capella YouTube channel

The "Eclipse Capella - Open Source MBSE Solution" YouTube Channel is a great training resource with more than 20 webinars:

https://www.youtube.com/c/EclipseCapella/videos

Pascal Roques (PRFC) Online Resources

Pascal also has a YouTube channel, with short videos, both in French and English:

https://url4ap.net/PRFC-Videos

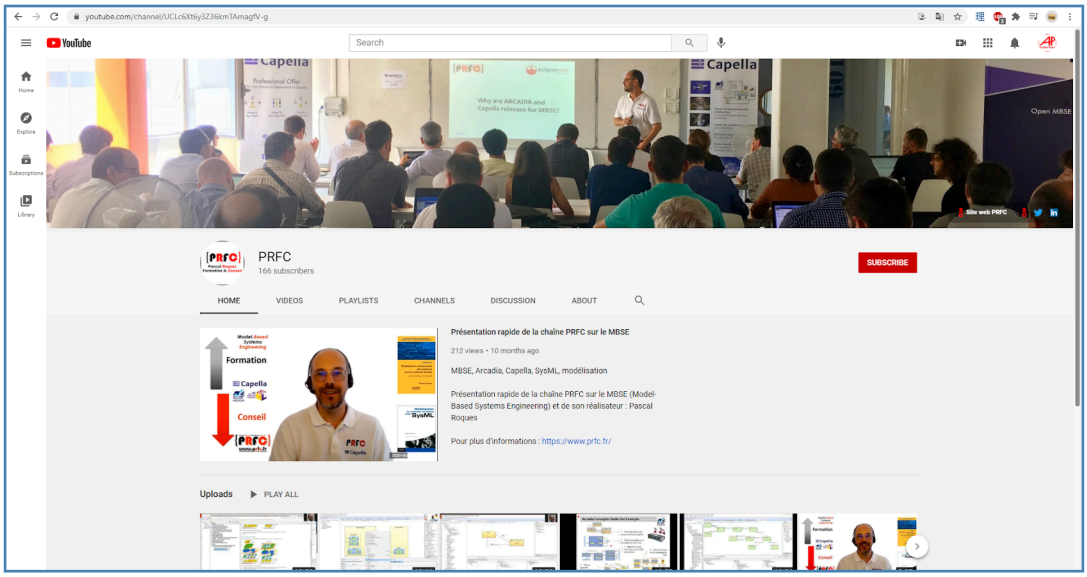


Figure A-30 – Pascal's YouTube channel

Most of the videos are short extracts from real Capella training sessions, focusing on a specific topic of interest. These videos cover:

- **Simple Subjects for Beginners –** such as "Blank Diagrams Basics in Capella", which explains the differences between a Graphical Object and a Model Element. Other topics include the difference between "Delete from Diagram" and "Delete from Model" commands, as well as the creation and modification of functional chains.
- **Advanced Features of the Tool –** such as "System Subsystem Transition Add-On for Capella", which demonstrates the use of the System/Subsystem Transition Add-On in the EOLE case study, or "REC/RPL et Physical Path avec Capella" (in French) explaining how to create a reusable component (REC) in a Library, and how to instantiate it in a project as a replica (RPL).