



# Deploying your visualisations

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*Documentation for the Tom.bio ID Visualisation Framework*



Dr Richard Burkmar  
Biodiversity Project Officer  
Field Studies Council  
Head Office  
Montford Bridge  
Shrewsbury  
SY4 1HW

[richardb@field-studies-council.org](mailto:richardb@field-studies-council.org)  
Tel: (01743) 852125

Tomorrow's Biodiversity Project  
funded by the Esmée Fairbairn  
Foundation



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## 2 Introduction

If you develop an interesting taxonomic knowledge-base and you want other people to be able to use it with the Tom.bio visualisations, you need to share the results of your labour somehow. There are three approaches to doing this:

1. sharing locally by copying between computers;
2. deploying to your own website; or
3. hosting it on the FSC Tomorrow's Biodiversity project website.

Each of these options is described below.

## 3 Sharing by copying between computers

The most straightforward way to share your knowledge-based visualisations with one or just a few people is simply to copy it to another computer. Follow the steps below.

1. **Copy the entire tombiovis folder** (e.g. tombiovis-1.2.3) to a memory stick or some other media and copy it from here onto another computer. Alternatively you could zip the folder up and email it but, this could be quite a large file – especially if you have used a lot of images – so be cautious about this.

The above step is similar to the first step you took when installing the framework on your computer, i.e. downloading and unzipping the framework, only this time it includes the knowledge-base you've created. The remaining steps are exactly the same as installing the framework for the first time on any computer.

2. Enable the new computer to emulate a web server, e.g. by **installing the Web Server plugin on Google Chrome**.

As you certainly know by now, the above steps are 'one-off' but the following two are required whenever you want to run your visualisations on the new computer.

1. From Chrome, **start the Web Server add-in** and use the *Choose folder* button to select your framework folder (e.g. tombiovis-1.2.3).
3. **Start the visualisation** by entering the following URL into your web browser:  
<http://127.0.0.1:8887/vis.html>

An alternative to the above steps is simply to get the owner of the computer onto which you are copying your knowledge-base to follow the Quick-start Guide to install the framework on their computer and then to copy just your knowledge-base folder into the kb folder. You will also need to update the 'vis.html' file, e.g. by replacing it with yours, so that it points to the new knowledge-base.

To change the appearance of the page around the actual visualisation, e.g. the title **Tom.bio ID Visualisation test page** and **footers**, you need to edit the vis.html file. You don't need much of an understanding of HTML (the 'mark-up' language of websites) to do this if you are making very simple changes such as changing the title and removing the 'footers' text. But if you want to make more sophisticated changes, you will need to either have better understanding of HTML or seek help from someone that does.

## 4 Deploying to a website

### 4.1 Simple deployment as a standalone page

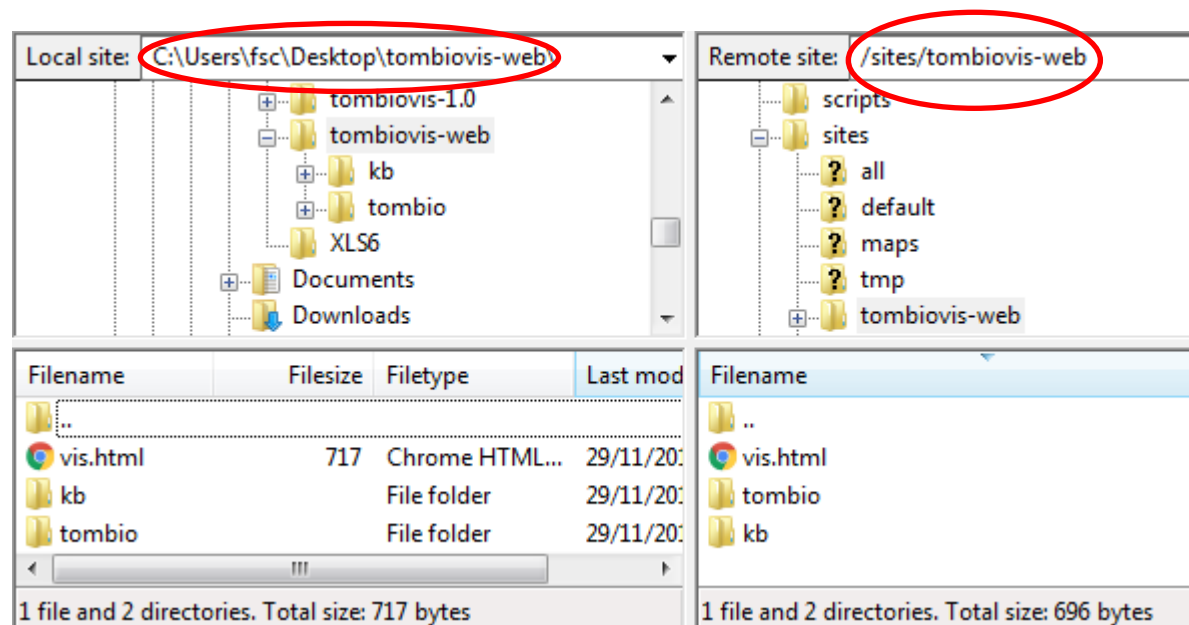
Deploying to a website isn't so very different from deploying to a computer.

1. **Make a copy your entire tombiovis folder** (e.g. tombiovis-1.2.3) on your computer and rename it, e.g. to tombiovis-web.
2. **Delete the following files and folders** from this new folder:
  - a. Documents folder
  - b. LICENSE file
  - c. README.md file
  - d. CHANGELOG.md file

This will just leave the 'vis.html' file and the kb and tombio folders.

3. **Delete any unwanted knowledge-bases**, e.g. biscuits, from the kb folder.
4. **Copy the new folder** (e.g. tombiovis-web) **to your webserver** below the root directory representing your domain.

If I was doing this on the Tom.bio website, for example, I could copy the tombiovis-web folder to the 'sites' folder shown below in a screenshot from FileZilla.



This would give me a URL for my visualisation of: <http://www.tombio.uk/sites/tombiovis-web/vis.html> (see below).



## Tom.bio ID Visualisation test page

Select a tool: Two-column key About this visualisation tool Reload

Un-used characters: show hide Reset all

Body segmentation select option

Number of main body parts ↑ ↓ x

Eye number ↑ ↓ x

Length of legs relative to body select option

Evidence balance positive

Evidence balance negative

Spiders 0

Harvestmen 0

Pseudoscorpions 0

Scorpions 0

Mites and ticks 0

## footers

If you want to change the appearance of the page around the actual visualisation, e.g. the title **Tom.bio ID Visualisation test page** and **footers**, you need to edit the vis.html file (see the previous section).

### 4.2 Deploying to a content management systems (CMS)

Deployment to a Content Management System (CMS) such as Drupal, Wordpress, Joomla or Umbraco is a little more involved and what you do will depend on your CMS and its configuration on your site. If you are even reading this section it suggest that you know something about your CMS – if not then you need to seek help from your webmaster – showing them this installation guide.

The contents of the vis.html file are shown below:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>Tom.bio ID Visualisation</title>
  <script>
    //Set options to tailor page configuration (from 1.6.0)
    var tombiovis = {
      opts: {
        hideVisDropdown: false,
        tools: ["vis1", "vis2", "vis3", "vis4", "vis5"],
        //selectedTool: "vis1",
        //lastVisualisation: "vis1",
        selectedGroup: "Structure",
        //tombiover: "refresh-1",
        checkKB: true,
        devel: true,
        tombiopath: "tombio/",
        tombiokbpath: "kb/biscuits/"
      },
    }
  </script>
  <!--Change the path to load.js to match the installation environment-->
  <script type="text/javascript" src="tombio/load.js"></script>
</style>
```



```

        body {
            font-family: Arial, sans-serif;
        }
    </style>
</head>
<body leftmargin="100px">
    <h1 id="tombiod3-header">Tom.bio ID Visualisation test</h1>
    <div id="tombiod3"></div>
    <div id="tombiod3-footer" style="width: 100%">footers</div>
</body>
</html>

```

The important parts are highlighted in yellow and these are the bits that need to be implemented in an appropriate place on your CMS page. The *tombiopath* and *tombiokbpath* options must be edited appropriately to reflect the installation location of the framework and knowledgebase folder. All the other options are optional (!) and described elsewhere in this document.

The 'load.js' script is responsible for loading and starting the framework and it replaces the contents of the `<div id="tombiod3"></div>` tag with all the dynamically created visualisation markup – so place this tag where you actually want the visualisation to appear within your page.

The `<h1 id="tombiod3-header">` and `<div id="tombiod3-footer">` tags are optional – the framework replaces them with the name of your knowledgebase (from the title metadata tag) and the citation for the knowledgebase respectively.

#### 4.2.1 Other considerations when hosting on CMS pages

If you host framework visualisations within the context of a CMS page it is quite likely that you might have to make some adjustments to the CSS styling rules that are incorporated within the framework. Sometimes the CSS that creates the general look and feel of your CMS website affects the look and feel of the framework visualisations in unexpected ways and you might have to adjust or add further CSS to the framework stylesheets to fix this.

Most of the framework's CSS currently resides in the file 'tombio/tombiovis.css' although some visualisations have their own CSS in their corresponding sub-folder. There is also a CSS file for the taxon selection tool that appears in a couple of the visualisations ('tombio/taxonselect.css')

#### 4.2.2 Caution when deploying on CMS sites or within other frameworks

Aside from the possible clashing of CSS styles as described in the previous section, a more potentially serious problem involves incompatibilities between Javascript libraries required for the Tom.bio ID Framework and those packaged as part of the CMS or other frameworks.

For example there is a problem on Drupal 8 sites. When viewed in an iPad, Drupal 8 loads fastclick.js which interferes with the jQuery UI Dropdown lists used by the Tom.bio ID Framework and is very difficult to avoid or workaround.

Because of such difficulties, we recommend implementing pages built with the Tom.bio ID Framework as standalone pages, even in CMS and other framework environments.



## 5 Hosting on the Tomorrow's Biodiversity website

If you don't have a website that you can deploy to, you can ask the FSC's Tomorrow's Biodiversity project to host the visualisation for you.

We will host on a page that makes it clear that we are only providing a hosting service and that the knowledge-base, and responsibility for it, is yours.

We will only ask you to confirm that nothing we are hosting on your behalf infringes anyone's copyrights or intellectual property rights.

## 6 Options for tailoring your deployment

There are a number of javascript options that can be specified on the main *tombiovis* javascript object modify the way the framework behaves. The *tombiovis* object is created in a script tag on your top level html page.

In vis.html, it looks like this:

```
<script>
  //Set options to tailor page configuration (from 1.6.0)
  var tombiovis = {
    opts: {
      hideVisDropdown: false,
      tools: ["vis1", "vis2", "vis3", "vis4", "vis5"],
      //selectedTool: "vis1",
      //lastVisualisation: "vis1",
      selectedGroup: "Structure",
      //tombiover: "refresh-1",
      checkKB: true,
      devel: true,
      tombiover: "tombio/",
      tombiokbpath: "kb/biscuits/"
    },
  },
</script>
```

This has all the possible top level options (though some are commented out in the default vis.html file. Each of the options is described below.

### 6.1 The hideVisDropdown option

If this option is present and set to `true`, then the drop-down visualisation selection list is not displayed on your visualisation page. This is only really useful if you either want to present only a single visualisation or you are using API features of the *tombiovis* object to provide other means for the user to change the visualisation (see the *tombiovis* API section).

### 6.2 The tools option

Use this option to specify which tools to include in the drop-down list. The currently generally available tools are:

- vis1 – the two-column key
- vis2 – the single-column key
- vis3 – the side-by-side comparison tool



- vis4 – the full details tool
- vis5 – the circle-pack key.

These values are supplied as strings in an array, e.g. ["vis4", "vis3", "vis3"]. If no value is supplied, then the framework uses the value ["vis1", "vis2", "vis3", "vis4", "vis5"].

### 6.3 The selectedTool option

Use this to specify which tool should be automatically selected when the visualisation starts. This can take any of the values specified in the array of visualisations (which can be specified with the tools option), e.g. "vis2". However, the selectedTool option can also take on other values shown below:

- visInfo – displays information on the ID framework (corresponds to 'About Tom.bio ID visualisations' item on the visualisations drop-down menu).
- kbInfo – displays information on the knowledge-base (corresponds to 'About the knowledge-base' item on the visualisations drop-down menu).
- currentVisInfo – displays information on the 'current visualisation' (name on the visualisations drop-down menu changes depending on the last tool selected).
- tombioCitation – displays a page that explains how to cite the framework, knowledge-base and last used visualisation.

If the value is not specified, then the first value from the array of all available visualisations (which can be specified with the tools option) is used. When this option is set to either of the values 'currentVisInfo' or 'tombioCitation', the lastVisualisation option must also be set (see below).

### 6.4 The lastVisualisation option

The framework tools that display information on the current visualisation (option 'currentVisInfo') and citation information (option 'tombioCitation'), expect a current visualisation to have been set. But when either of these is set as the first tool with the selectedTool option, these tools don't know what the current visualisation – the last used visualisation – is. In such cases, the lastVisualisation must be used to specify one of the visualisations, e.g. "vis3".

### 6.5 The selectedGroup option

The selectedGroup option allows you to specify a character group that should be selected by default in the characters input control. The value is a string which must be a value specified in the Group column of the characters tab of the knowledge-base. If no value is specified, then the default – 'All' – tab is selected.

### 6.6 The tombiover option

Setting this option to a new unique string, of any value, forces that string to be used as a query string parameter when resources such as javascript, css, image or knowledge-base files are loaded. For example if the value is set to 'refresh-1' then the tombio core javascript resource 'visP.js' will be loaded with the following relative URL: `tombio/visP.js?ver=refresh-1`





This can help overcome browser caching problems if you, as a developer, change some of these resources and want your users to use the new resources – not those from their browsers cache.

## 6.7 The checkKB option

Set this option to `true` if you want to initiate the knowledge-base validity checks and reporting. It's best to set this to true when you are developing a knowledge-base but either remove it or set it to false when you deploy your visualisation to speed up initialisation for your users. Typical output from the validity checks is shown below.



### First fix these knowledge-base problems...

Some problems were found with the knowledge-base. They should be easy enough to fix. Read on for more details and guidance.

When you've fixed one or more problems, use the *Save worksheets as CSV* button on the KB to regenerate the CSVs and then click the *Reload* button above.

The problems are colour-coded according to the schema shown below:

- These are serious problems that could cause the visualisation software to malfunction.
- These problems are not likely to cause the visualisation software to malfunction, but you might not see what you expect.
- These are for information only - it may be what you intended to do, but if not, you may as well sort them out. These will not cause the visualisation software to malfunction.

#### On the characters worksheet...

- There is no row on the *characters* worksheet for the character 'BiscuitColour' represented by a column (column 3) on the *taxa* worksheet. All columns on the *taxa* tab must be represented by a row in the *characters* worksheet regardless of whether or not they are used. Names are case sensitive.
- There is no column on the *taxa* worksheet for the character '#BiscuitColour' which is represented in the *characters* worksheet.
- You must specify a 'Weight' value for 'Coating' because it has a 'Status' value of 'key'.
- '1,100,' is an invalid spin control 'Param' value for 'Width'. It must have the form 'n,n,n' (where n can be any valid numeric value, including decimal).

#### On the values worksheet...

- There is no row on the *characters* worksheet for the character 'BiscuitColour' represented in the *values* worksheet.

#### Values on the taxa worksheet...

- The value 'Pink' listed on the *taxa* worksheet for the character 'BiscuitColour' is not specified on the *values* worksheet.

#### On the media worksheet...

- An image is specified for the character 'BiscuitColour' on the *media* worksheet, but that character is not on the *characters* worksheet.
- An image is specified for the character 'BiscuitColour' on the *media* worksheet, but that character is not on the *characters* worksheet.
- An image is specified for the character 'BiscuitColour' on the *media* worksheet, but that character is not on the *characters* worksheet.

## 6.8 The devel option

Set this option to `true` if you want to use non-minified version of tombio javascript and css file resources. If you are developing software, have this set to true so that your debugger reports the correct line numbers in problem code. But on production sites, set it to false, or remove it, to speed up initialisation.

## 6.9 The loadWait option

Set this option to `true` if you want to instruct the load.js module to defer execution, after loading, until instructed (by the `tombiovis.startLoad()` API call). This enables hosting pages to load without the overhead of loading and initialising the framework until required. (This option is not illustrated in the vis.html example page.)

## 6.10 The tombioPath option

This is a mandatory option! In other words you must specify this for the framework to load. It specifies the path – relative to the root folder of your website – where the core tombio software is stored.



## 6.11 The `tombioPath` option

The second mandatory option! This indicates where the knowledge-base folder is located relative to the root folder of your website.

## 6.12 The `loadCallback` option

You can use the `loadCallback` option to specify a callback function that will be called when the main `tombiovis` modules are loaded (but before any particular tools is loaded). (This option is not illustrated in the `vis.html` example page.)

# 7 API features of the `tombiovis` object

## 7.1 Switching tool

As of version 1.6.0 there is an API (Application Programmers Interface) element on the `tombiovis` object that allows you to switch between visualisations without using the default visualisation drop-down list. This is useful if, for example, you are implementing the visualisation within the framework of a wider website and you want that website's GUI to be able to change the visualisation tool.

The single API call currently available is: `tombiovis.visChanged(tool, lastVis)`

The first argument to the `visChanged` function is to specify the tool to engage. It can take any of the values that can be specified by the `selectTool` top-level option described in the previous section. The optional second argument is required if you are using either of the values '`currentVisInfo`' or '`tombioCitation`' for the first parameter and it is directly equivalent to the `lastVisualisation` top-level parameter and can take any of the values allowed for that option.

## 7.2 Starting `tombiovis` load

When the top-level option `loadWait` is set to `true` the `load.js` module will not automatically load the rest of the `tombiovis` framework. When this is the case, you need to start the load by making the following API call:

```
tombiovis.startLoad()
```

# 8 URL parameters

A number of URL parameters can be used to specify options. For example the URL parameter – *selectedTool* – can be used on the link which invokes your visualisation to select a particular tool on initialisation. The example shown below would start a visualisation with the *Circle-pack key* (`vis5`) selected.

```
http://www.tombio.uk/harvestmanvis?selectedTool=vis5
```

Some of the visualisations have right-click context menu options, e.g. 'Set URL for full details view', that construct URLs with parameters that take you straight to the same tool configured in exactly the same way as when you used the menu option. An example is shown below:

```
http://www.tombio.uk/vis.html?selectedTool=vis4&taxon=Milk%20Chocolate%20Digestive&opts=image-text&imgi=2&txti=1
```



This is starting the page vis.html with the 'vis4' (full details) visualisation and the taxon 'Milk Chocolate Digestive' selected. Furthermore it is reselecting the very image and text files and display options selected when the URL was created. You can use URLs created in this way to create links to specific visualisations that are displaying exactly what you want people to see.