**IDE accessibility features**

21/04/2021

**BLUF:**

While our QA process has improved significantly since JM joined the faculty and wrote the procedure, to ensure due diligence has been fulfilled for scaling out the grad programme. IDE accessibility varies across the IDEs used by the faculty. Some of our suggested IDEs are identified as sub-optimal for people with additional accessibility requirements. Ideal accessibility within an IDE may not always align with an ideal learning environment.

**Proposed Actions:**

* GitHub course QA repo: [Adding accessibility checks in course QA](https://github.com/datasciencecampus/DSCA_course_standardisation/issues/9)
* [Ticket on faculty kanban](https://github.com/datasciencecampus/DSCA_project_overview_dev/issues/275) : test out Visual Studio Code for Python framework.
* [Added to faculty risk log](https://officenationalstatistics.sharepoint.com/:x:/r/sites/dscdsc/Cap/Faculty/Faculty%20Processes%20and%20Standards/Risk%20log/Faculty%20Risk%20log.xlsx?d=wdcf3aac550cb4deb99b3afe5ac1610d1&csf=1&web=1&e=iduHVg)
* Raise with faculty the prospect of using NVDA screen reader software to check our suggested IDEs.

**Summary Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IDE Name** | **Version tested** | **Main Framework supported** | **Snapshot of features** | **Actions arising** | **Comments** |
| Spyder | 3.1.4 | Python | * customise interface * text size * hide menus * maximise windows * keyboard shortcuts * Interactive tour * Font type and size presets * Interface customisation * Preset themes | Liaising with faculty in regards to testing with NVDA screen reader. |  |
| Jupyter Notebook | 5.0.0 | Python | * Toggle headers, toolbars and line numbers * Keyboard shortcuts * User interface tour | Liaising with faculty in regards to testing with NVDA screen reader. | Note this review applies to the IDE and not the markdown output of Jupyter Notebook, which can be extensively styled with html and css. |
| Visual Studio Code | 1.55.2 | Python | * Zoom * High contrast mode * Suggests screen reader compatible. * Keyboard nav | Faculty Kanban ticket to test IDE. | Not tested. Features apply to version documentation.  Limited faculty experience.  Suggested to be better equivalent of Spyder for VI users. |
| R Studio | 1.2.1335 | R | * Zoom function * Preset themes * [Colour Blind safe add in available](https://github.com/DesiQuintans/Pebble-safe#installation) * Keyboard shortcuts * IDE region / quadrant customisation | Liaising with faculty in regards to testing with NVDA screen reader. | Desktop app tested. R studio server (web hosted version) reportedly better screen reader compatibility. |

The IDEs currently suggested within our minimum requirements list are as follows:

**Python**

**Spyder**

**Version tested:** Spyder 3.1.4 running on 64bit Python 3.6.1

Appearance – customise interface, hide menus, maximise windows.

Keyboard shortcuts.

Interactive tour.

**Jupyter Notebook**

**Version tested:** The version of the notebook server is **5.0.0** and is running on:

Python 3.6.1 |Anaconda 4.4.0 (64-bit)| (default, May 11 2017, 13:25:24) [MSC v.1900 64 bit (AMD64)]

Toggle headers, toolbars and line numbers

Keyboard shortcuts

User interface tour

**Visual Studio Code**

Suggested by Jon Mellor as better than Spyder and available on ONS estate.

Yammer conversation with colleague David Foster, about add ins that extend the functionality of the IDE:

No worries! I haven't used any myself, but have seen extensions that add more support for voice-based navigation and also specialised visual themes for the editor. The editor is generally very customisable, if people have specific needs or preferences.

All extensions should be installable without special permissions through the Extensions tab, though most users will probably want command line access to use the built in terminal.

This sounds very promising and something we should definitely look into. I’ll raise a ticket on faculty Kanban.

[Accessibility features](https://code.visualstudio.com/docs/editor/accessibility)

64 bit version installable for ONS colleagues [directly from site](https://code.visualstudio.com/Download) (not tested).

Zoom

High contrast mode

Suggests screen reader compatible.

Keyboard nav

**R**

**R Studio**

**IDE** Version 1.2.1335

Running on:

**Version tested:** - Session info --------------------------------------------------------------------

setting value

version R version 3.6.1 (2019-07-05)

os Windows 10 x64

system x86\_64, mingw32

ui RStudio

language (EN)

collate English\_United Kingdom.1252

ctype English\_United Kingdom.1252

tz Europe/London

date 2021-04-20

Note that newer R versions are available on the ONS estate. I’m not aware if that also applies to the R Studio IDE and if that affects accessibility.

[R Studio list of accessibility features.](https://support.rstudio.com/hc/en-us/articles/360044226673-RStudio-Accessibility-Features)

Some nuance about whether R Studio desktop or R Studio Server (web-hosted version). So far, faculty have largely used desktop for capability training.

Zoom function – browser specific on server.

Appearance – many preset themes available. [Colour Blind safe add in available](https://github.com/DesiQuintans/Pebble-safe#installation), dependent on GitHub access though. Some corporate infrastructure may not permit the installation GitHub add-ins.

Keyboard shortcuts.

Article discusses reduced motion mode but could not find under the identified menu on my version (1.2.1355).

Advice on customising the menus and regions to simplify the experience are outlined.

[Screen reader support of R studio desktop](https://support.rstudio.com/hc/en-us/articles/360045612413-RStudio-Screen-Reader-Support) is currently experimental. Detailed guidance on use of R Studio server with screen reader software is produced but it not without its issues.

*We could ask for screen reader access and test R Studio, then providing the feedback to the R Studio team.*

Helpful links:

[BlindR User Group](http://nfbnet.org/mailman/listinfo/blindrug_nfbnet.org)

[Statistical Software for Blind Users](https://r-resources.massey.ac.nz/StatSoftware/)

**Alternative IDEs**

Some of these IDEs have been highlighted to be more friendly for VI users, however some have also been identified as not ideal for learners. Some of these IDEs support frameworks that the faculty are not fluent within, but could be used as an alternative for achieving some of the outputs covered within the graduate programme.

Sweave

Minitab

SPSS

Stata

SAS

Mplus