cooperate

Eclipse and Accessibility - Results of a survey

Vanessa Petrausch

02. November 2016

Number of complete records in this survey	14
Total number of records in the survey	20
Percentage	70%

1 General Information

1.1 How old are you?

Answer	Count	Percentage
under 18	0	0%
18 - 29	6	43%
30 - 45	7	50%
46 – 60	1	7%
Over 60	0	0%
Not answered	0	0%
Not displayed	0	0%

1.2 What is your current job status?

Answer	Count	Percentage
Pupil/Student	5	36%
Employee	8	57%
Self-employed	1	7%
Unemployed	0	0%
Not answered	0	0%
Not displayed	0	0%

1.3 In which area or sector are you working?

Answer	Count	Percentage
Automotive	0	0%
Consulting, Banking & Insurances	0	0%
Universities	5	36%
IT & Telecommunications	8	57%
Media	0	0%
Civil Service	0	0%
Other	0	0%
Not answered	1	7%
Not displayed	0	0%

1.4 Do you have a visual impairment?

Answer	Count	Percentage
Blind	11	79%
Severely visual impaired	1	7%
Visually impaired	0	0%
No impairment	2	14%
Not answered	0	0%
Not displayed	0	0%

2   Eclipse in General

2.1   How long have you been into the area of programming?

Answer	Count	Percentage
less than 1 year	1	7%
1 - 5 years	3	21%
5 - 10 years	4	29%
more than 10 years	6	43%
Not answered	0	0%
Not displayed	0	0%

2.2   Do you use Eclipse? If yes, how often do you use Eclipse?

Answer	Count	Percentage
Every day	2	14%
Several times per week	4	29%
Several times per month	2	14%
Very rarely	5	36%
Not at all	1	7%
Not answered	0	0%
Not displayed	0	0%

2.3   Which version of Eclipse do you use?

IF Answer(2.2) != "Not at all"

Answer	Count	Percentage
Mars (Version 4.5)	7	50%
Luna (Version 4.4)	1	7%
Kepler (Version 4.3)	1	7%
Juno (Version 4.2 or 3.8)	1	7%
Other	2	14%
Not answered	1	7%
Not displayed	1	7%

Answers for Option "Other"

- Predominantly 3.4 till 3.6, later ones only rarely
- predominantly3 .5 and 3.6, later ones only rarely

2.4   Do you use another development environment instead?

IF Answer(2.2) == "Not at all" OR "Very rarely"

Answer	Count	Percentage
No	2	14%
Visual Studio	4	29%
NetBeans	0	0%
Other	0	0%
Not answered	0	0%
Not displayed	8	57%

2.5   Would you like to learn about Eclipse?

```
IF Answer(2.2) == "Not at all"
```

Answer	Count	Percentage
Yes	1	7%
No	0	0%
Not answered	0	0%
Not displayed	13	93%

2.6   How do you recognize errors or warnings within your code? You can give additional explanations to your answer within the comment area.

Answer	Count	Percentage
Visual distinction	2	14%
Screenreader tells me	7	50%
Via hotkeys	3	22%
With Braille display	2	14%
Not at all	0	0%
Not answered	0	0%
Not displayed	0	0%

Answers for Option "Comment"

- Hi. Use jaws for windows, use visual studio community 2015 32 bit with jaws 17. Using windows 64 bit pro.
- I do not know a possibility to recognize errors and warnings with the screenreader. The keyboard commands for Problem View and Jumping between markings within Eclipse is enough so far.
- With the problems view in eclipse and also as projects are built with either maven or gradle output in the console view.
- With the error list, available with hotkeys CTRL+SHIFT+Q, X.
- In Visual Studio Jaws will report that there is an error or I see the program stops during debugging (latter mechanism is also important for me as Jaws doesn't always behave smoothly in such situations). I'll then navigate to the error list using a hotkey. My last use of Eclipse is a while ago but as far as I remember I had similar strategies in that IDE, though I've also done Java programming on the command line (where I could just review the errors the program generated, that was more efficient as Eclipse was not as usable when I initially learned Java).
- I use the Problem View for which I redefined the hotkey
- Both audio and braille display
- This one is a bit of a blanket question. If you mean, can I detect visual signs of having made an error, my answer would be none at all. I can only use the previous/next annotation hotkeys or the error list, I have no real-time way to hear when I make an error. If you mean spotting errors myself, my tool of choice tends to be a screenreader with braille display.
- I tend to navigate to the 'Problems' tab. So no inline error reporting.
- JAWS with Visual Studio (tested Version 2015) supports it only rarely, not at all at braille display. Both would be helpful, I would prefer Braille
- Does not work properly with JAWS in Visual Studio. Not working at all with a Braille display. The display via Braille would be better, because it is easier to "underline" things.

2.7 Would earcons, acoustic messages, be helpful, e.g. to distinguish between errors and warnings or to give feedback that compilation is finished?

Answer	Count	Percentage
Yes	7	50%
No	3	21%
Partly	4	29%
Not answered	0	0%
Not displayed	0	0%

2.8 Where would you like to receive acoustic signals as support?

`IF Answer(2.7) != "No"`

Answer	Count	Percentage
Nowhere	0	0%
Other	10	72%
Not answered	1	7%
Not displayed	3	21%

Answers for Option „Other"

- At compilation or builds.
- When compilation is complete, different sound for success and fail.
- Feedback for longer procedures (Compile, update, …)
- Debugging, coding, compilation
- First occurrences of errors
- In at most five different places. success, failure on common tasks
- real-time visual notifications. Error, warning, quick fix etc.
- When compilation finishes, or when other time-consuming tasks finish, e.g. pulling in a Maven project.
- Errors, warnings, Code folding open/close, hint (e.g. shown parameter list), compiling: done/error, refactoring begin/finished/error, Area with Changes from other authors… (not necessarily complete)

2.9 Do you know other programs with acoustic support features?

Answer	Count	Percentage
Yes	6	43%
No	7	50%
Not answered	1	7%
Not displayed	0	0%

2.10 What is the name of the program or programs and what is implemented in a good/bad way? Which aspects do you think as useful?

`IF Answer(2.9) == "Yes"`

Answer	Count	Percentage
Answer	5	36%
Not answered	1	7%
Not displayed	8	57%

Eclipse in General

Answers for Option „Answer"

- Microsoft Office has sound packs for signaling events like file open, save, delete content of cell in excel, etc. NVDA screen reader progress bar beeps work well to indicate progress whilst not being continual sound.
- Windows itself gives sounds upon notifications and errors, and screen readers use auditory notifications in web browsers. I have also experimented with speech and sound manager in Jaws. I think sounds are effective for alerting users to events, errors or notifications. That helps me to switch my focus to the event / error in question. But auditory languages are harder to design; one of the options in Jaws was to have control types announced by sounds rather than speech, but I remember it was hard for me to find the right metaphors for each control and remembering all selections. So I think an effective auditory language should be simple, with a small number of sounds and the sounds should be a clear metaphor for the event they represent for memorizability. auditory
- NonVisual Desktop Access (NVDA) uses a few auditory cues, e.g. to indicate when switching between browse/focus mode. My opinion is that less is more.
- VoiceOver (iOS), Talkback (Android), some Audiogames und Screenreader (JAWS partly, Window Eyes, Cobra). Earcons are better, because unambiguous, are better recognized/are easier to draw attention to an event than with speech informing about (especially if some code or comments are read). However they should not be tiring and should be able to deactivate and regulation in volume. Very important is a short duration (<0.5sec) and sound without echo (Talkback is an example for badly designed Earcons in my opinion).

2.11 How do you inform yourself about code changes made by other persons?

Answer	Count	Percentage
Integrated version control system	2	14%
External version control system	6	44%
Manual code comparison	2	14%
Personal demand	1	7%
Other	2	14%
Not answered	1	7%
Not displayed	0	0%

Answers for Option "Other"

- Via visual studio source control.
- All but internal

2.12 Why don't you use an integrated versioning system?

IF Answer(2.11) != "Integrated version control system"

Answer	Count	Percentage
Limited accessibility	6	44%
Limited functionality	1	7%
Unknown so far	1	7%
Other	1	7%
Not answered	3	21%
Not displayed	2	14%

Answers for Option "Other"

- Besides Eclipse I use other tools and the external version control system ensures they all stay in sync. Also, a simple command-line interface is hard to beat.

2.13 What features do you use of the integrated connection of the version control system?

```
IF Answer(2.11) == "Integrated version control system"
```

Answer	Count	Percentage
Side-by-Side-Diff	0	0%
Change history	2	14%
Update	0	0%
Commit	0	0%
Other	0	0%
Not answered	0	0%
Not displayed	12	86%

2.14 Are there any problems recognizing changes made by colleagues within the versioning system you use?

Answer	Count	Percentage
No	4	29%
Display of complex changes	3	21%
Traceability of the author	1	7%
Identification of changed components	4	29%
Other	0	0%
Not answered	2	14%
Not displayed	0	0%

2.15 Do you use code folding (hiding special areas of the code)?

Answer	Count	Percentage
Yes	7	50%
No	5	36%
Unknown so far	1	7%
Not answered	1	7%
Not displayed	0	0%

2.16 Why don't you use code folding?

```
IF Answer(2.15) == "No"
```

Answer	Count	Percentage
Could not recognize the possibility of folding	0	0%
Identification of hidden areas is not possible	1	7%
Missing shortcuts	1	7%
Other	2	14%
Not answered	0	0%
Not displayed	10	72%

Answers for Option "Other"

- Identifying the folding and understanding how to get at the code inside the folding. May be not enough knowledge of the feature.
- not available in my workflow

2.17 In which situations do you use code folding?

```
IF Answer(2.15) == "Yes"
```

Answer	Count	Percentage
Hiding currently irrelevant components for a task	5	36%
Hiding unimportant components in general	2	14%
Compensation of shortcomings from assistive technologies like Braille display or screenreader	0	0%
Other	0	0%
Not answered	0	0%
Not displayed	7	50%

2.18 How do you navigate through source code?

Answer	Count	Percentage
Within the source code itself	7	50%
With the outline	1	7%
Jumping back and forth between editor positions	0	0%
Text search	2	14%
Jumping to line number	0	0%
Other	4	29%
Not answered	0	0%
Not displayed	0	0%

Answers for Option "Other"

- Many functions and hotkeys, all given answers with same amount and searching for types, hierarchies, the complete palette of eclipse.
- Package explorer, using call hierarchy, open declaration.
- A combination of all, it depends on the situation
- This is unfair: I use most of the options, except the outline.

3 Eclipse and Accessibility

3.1 Did you edit properties after installing Eclipse, which improve the accessibility?

Answer	Count	Percentage
No further properties	10	71%
Other	4	29%
Not answered	0	0%
Not displayed	0	0%

Answers for Option "Other"

- Install plugins
- Change hotkeys, disable animations, configuration of perspective
- Hide as many views as possible, even it did not work as well as I expected. In general the layout concept of Eclipse is the biggest barrier for efficient usage of eclipse.
- Hide views, or rearranged by accident. My eclipse is not really suited for seeing colleagues.

3.2 Which screenreader do you use with Eclipse (or other IDE)?

Answer	Count	Percentage
None	1	7%
NVDA	7	50%
Jaws	4	29%
WindowEye	0	0%
Other	2	14%
Not answered	0	0%
Not displayed	0	0%

Answers for Option "Other"

- ORCA

3.3 How well is Eclipse (or other IDE) usable with a screenreader?

```
IF Answer(3.2) != "None"
```

Answer	Count	Percentage
Very good	3	21%
Good	3	21%
Moderate	6	44%
Not good	0	0%
Not usable	0	0%
Not answered	1	7%
Not displayed	1	7%

3.4 Which problems occur by using a screenreader?

```
IF Answer(3.2) != "None"
```

Answer	Count	Percentage
No problems	2	14%
Other	9	65%
Not answered	2	14%
Not displayed	1	7%

Answers for Option "Other"

- Some Plugins, like the ones from subclipse are not usable with a screenreader, the other things work very well like accessing the menu with the keyboard
- The occasional inaccessible control, normally relating to a visual GUI design tool, however normally there is an alternative way of achieving the task (e.g. Android GUI editor is not accessible in ADT plugin, but one can edit the XML used by the SDK).
- Performance problems
- I'm not sure about the current situation with Eclipse. But for Visual Studio, theoretical accessibility (especially with Jaws) is quite good and improving steadily. Yet in practice it is not always stable and there are many tricks to learn to become proficient. As I gain more experience. I become better at eyes-free programming but I do find myself using the screen quite often to check what is going on when it is not announced clearly by Jaws or the system freezes during debugging.
- Problems mostly occur in 3rd Party Plugins, which have more focus on visual design like UML editors, GraphikDesigner, graphical XML Editor.
- Cycling between files can be difficult. No support for real-time warnings. Autocomplete often not accessible.
- Very occasionally a dialog box doesn't read properly.
- Hanging cursor tracing within the editor
- Wrong or uncomplete GUI elements, hanging cursor tracing within the editor, some areas/views not usable, difficult navigation between views, the view/perspective concept in general, missing real-time information (highlighting, fading-in of hints)

3.5   Do you use a braille display?

Answer	Count	Percentage
Yes	10	72%
No	3	21%
Not answered	1	7%
Not displayed	0	0%

3.6   Do you think the braille display is formatted well enough? For example indents, etc.

`IF Answer(3.5) == "Yes"`

Answer	Count	Percentage
Yes	3	21%
No	5	36%
Not answered	1	7%
Not displayed	5	36%

3.7   Would you like to have status displays, like the depth of the tree?

`IF Answer(3.5) == "Yes"`

Answer	Count	Percentage
No	4	29%
Other	3	21%
Not answered	2	14%
Not displayed	5	36%

Answers for Option "Other"

- Where ever needed already exists (e.g. NVDA shows depth in package explorer).

- Layer depth, line number, error state (or with one click jumping directly to the errorlist and back?) Also colors could be displayed, or direct connection with related status or author

3.8   Do you use accessibility plugins for Eclipse (or other IDE)? If yes, which ones?

Answer	Count	Percentage
No	11	79%
ACTF	1	7%
Other	1	7%
Not answered	1	7%
Not displayed	0	0%

3.9   How useful are these plugins? You can insert your reasons into the input fields right to the answers.

IF Answer(3.8) == "ACTF" OR "Other"

Answer	Count	Percentage
Not answered	2	14%
Not displayed	12	86%

3.10 If you could wish for any feature for Eclipse, what would it be?

- Easy way to navigate different tabs, and to go back to the home screen or home page, when creating multiple projects. Also hot keys, a built in tutorial, for new beginners or those who have not used it for a while. Couple of years, last time I used it. Easy way to compile and build and execute a project.
- Better accessibility of code completion and code folding
- More possibilities of navigation like "Jump to related test of a class x and back", Interface for screenreaders which provides line specific information like break points, GIT comments, etc.
- fix autocomplete in a permanent way and add support for real-time notifications to screenreaders
- The ability to write code while I get a cup of coffee.
- A running and accessible debupper. THAT is missing completely. When does somebody explain me the view/perspective thing, such that blind users understand the concept for efficient usage.

3.11 Finally, you can insert any comments, within the input field, that you can think of Eclipse, for example what is the main problem in the usage of Eclipse with visual impairment, what is well done, etc.

- Hi. Doing UML diagrams, DVDS, flow charts, that would be way cool, also sound effects, easy way to navigate the tree view, keyboard short cuts, and a built in tutorial, easy way to build, compile, ebug, and debug, and also execute.
- Generally accessibility in Eclipse is good and just works with just a few specific bugs here and there. Mainly due to using native platform controls, quite a contrast to products using the problematic and slow Java Access Bridge. Many plugins normally allows it to be used for most types of development tasks. Sometimes plugins are not up to date or are lacking in features and so make performing tasks more difficult (e.g. CDT is not good at handling conditional preprocessor instructions in C++, the ADT plugin is not supported by google so makes using eclipse harder for android development although accessibility is far superior to Android Studio).

Eclipse and Accessibility

- The XML schema editor is hard to use, if you do not want to type the source code by hand. An improvement there is necessary.
- I lack training opportunities because no one else close to me has the knowledge to get me started with Eclipse.
- Eclipse fixed a major problem within their editor in collaboration with developers from NVDA in just a few days. They can help if they know where and what needs to be done, they help willingly.