



I-UG's 2020 Educational Season

Funky Stuff on the IBM I

Tracy Eastwood
Logicmate



Session overview

Open source is emerging as a real contender in the development of our new modern systems.

This session will show some great ways of integrating them into our everyday projects. You will see some new ways of making some very impressive results using a mixture of open source products.

At our annual conference last June, we ran a workshop on Node.JS and the feedback we received from delegates was really positive.

We have therefore decided to continue with the theme in 2020 and Tracy Eastwood, a regular presenter at i-UG meetings will open your mind with some dazzling examples, all running on the IBM i. .



Who are we?, What do we do?

Logicmate

IBM i Modernisation specialists

IBM i Promoter of modernisation products

Web development

Genie, Profound UI, RPGsp

Output Management

InterForm/400

InterFormNg



IBM i Software development company

RPG, PHP, Python, Java, JavaScript, HTML, CSS

RPG Web services, Encryption



Questions during the presentation





IBMi Open Source Products - 5733OPS

- Node.js v0
- **Python 3.4**
- Chroot with gcc
- **Python 2.7**
- Node.js v4
- Git (version control site, 57 million repositories)
- Tools
- Eclipse Orion
- Cloud-Init for i
- Node.js v6
- Nginx
- IBM i Open Source Solutions Option 12
- IBM i Open Source Solutions Option 13
- IBM i Open Source Solutions Option 14
- IBM i Open Source Solutions Option 15

OLD



ACS Open Source Package Manager

IBM i Access Client Solutions

IBM i Access Client Solutions

File Edit Actions Tools Help

The screenshot displays the IBM i Access Client Solutions (ACS) interface. On the left is a navigation pane with a 'Welcome' section and several expandable categories: 'System' (set to 'lcs73'), 'General' (containing Data Transfer, 5250 Emulator, Integrated File System, Navigator for i, and Printer Output), 'Database' (containing Schemas, Run SQL Scripts, and SQL Performance Center), 'Console' (containing 5250 Console, Virtual Control Panel, and Hardware Management Interface 1), and 'Management' (containing System Configurations, 5250 Session Manager, and HMC Probe Utility). The main window is titled 'Welcome to IBM i Access Client Solutions' and contains introductory text. Overlaid on this is the 'Open Source Package Management' dialog box, which has tabs for 'File', 'View', 'Connection', and 'Utilities'. The 'Connection' tab is active, showing a status of '<NOT CONNECTED>' and buttons for 'Installed packages', 'Updates available', and 'Available packages'. Below this is a 'Connect to SSH' section with input fields for 'System', 'User', 'Password', and 'Container'.

NEW



Installing and upgrading

Open Source Package Management

File View Connection Utilities

Connection: tracy@lcs73:/

Installed packages Updates available Available packages

Package	Version	Repository
libopenssl1_0_0	1.0.2o-4	installed
libopenssl1_1	1.1.1-4	@ibm
libpcre1	8.40-0	installed
libpopt0	1.16-1	installed
libreadline6	6.3-2	installed
libsqlite3-0	3.19.3-0	installed
libstdc++6	6.3.0-24	@ibm/\$releasever
libutil1	0.3-0	installed
libutil2	0.6.1-0	@ibm
libxml2-2	2.9.4-3	installed
libz1	1.2.11-1	installed
ncurses-terminfo	6.0-2	@ibm
nodejs10	10.16.3-1	@ibm
nodejs8	8.16.1-1	@ibm
nodever	0.0.10-0	@ibm/\$releasever
nspr	4.13.1-3	installed
nss	3.30-5	installed
pase-libs-dummy	7.1-0	installed
perl	5.24.1-0	installed
python2	2.7.15-1	installed
python2-iniparse	0.4-1	@ibm/\$releasever
python2-pycurl	7.43.0-1	installed
python2-rpm	4.13.0.1-13	installed
python2-urlgrabber	3.10.2-2	installed
rpm	4.13.0.1-17	@ibm
yum	3.4.3-17	@ibm/\$releasever
yum-metadata-parser	1.1.4-1	installed

Done: 44 rows retrieved.

Information Reinstall Remove



Why Open Source

Three simple reasons

- Frameworks
- Frameworks
- Frameworks



What is an Open Source Framework

Open-source software (OSS) is a type of computer software in which **source** code is released under a license in which the copyright holder grants users the rights to study, change, and distribute the software to anyone and for any purpose.

Open-source software may be developed in a collaborative public manner.



Is Open Source Free?

- Yes, it's free like an inherited family air loom.
- Open source vendors usually make their living from supporting you, in the use of the open source product.



What about Security?

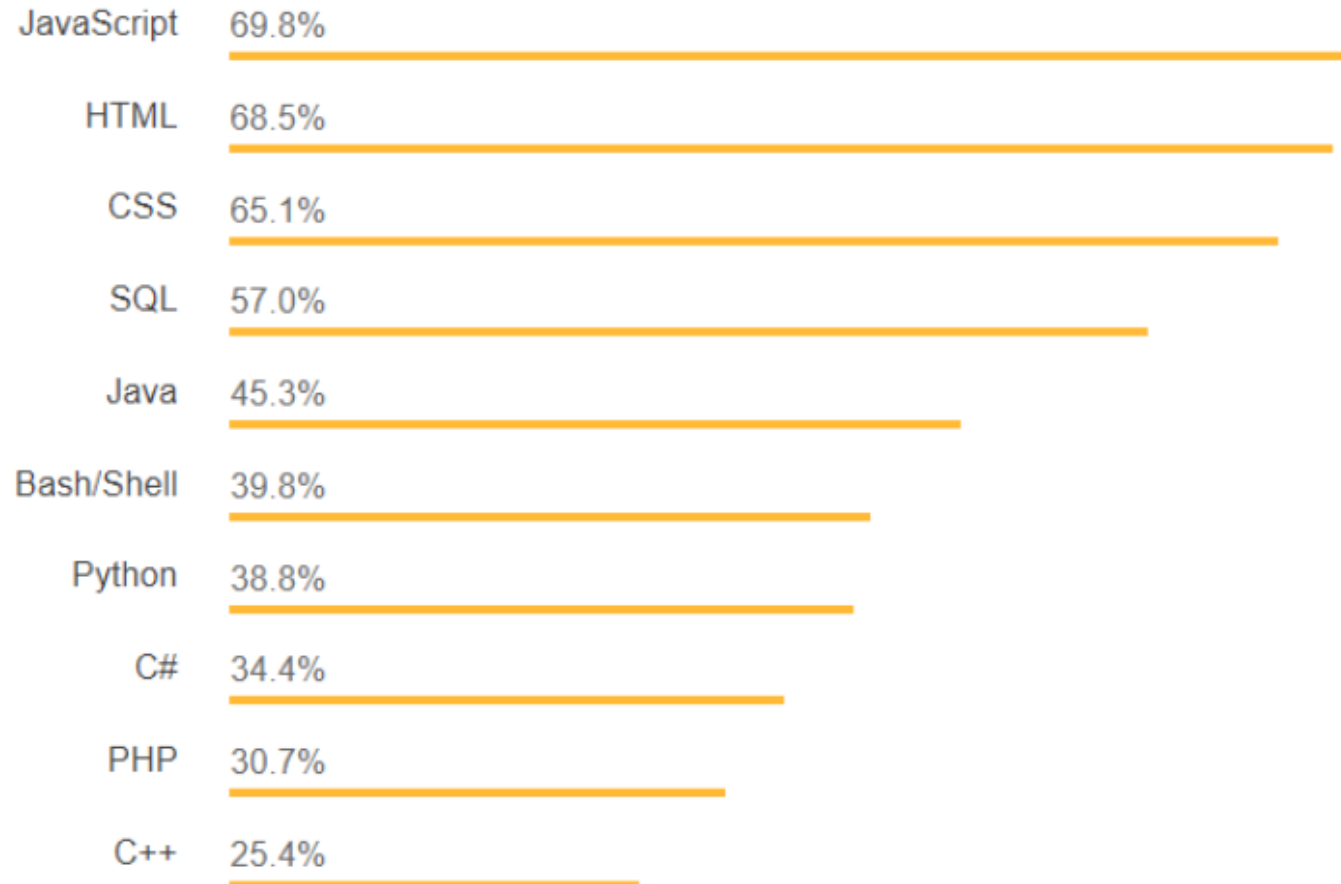
Firstly, I'm not a security specialist, these are the facts as I see them;

- IBM i is reputed to be robust and secure
- Used by lots of banks and financial institutions
- Has multiple layers of security features
- Gets really, really complicated....
- Speak to an expert

Decide upon what you are trying to secure and what level you need to go to, to secure it.



Most popular languages 2020



<https://insights.stackoverflow.com/survey/2018#most-popular-technologies>



Who Uses Open Source?

Using Node.js (the most popular)

- Netflix
- Paypal
- Capital One (Bank)
- Trello
- LinkedIn
- Yahoo
- Mozilla
- Uber
- Groupon
- Ebay
- Walmart
- Nasa



Examples using Node.js

Examples of Node.js apps using a platform noderun.com/ provided by Profound Logic.

It's a FREE, full stack development environment where you can create business ready applications in node.js and profound.js.

Gives you the ability to copy ("Fork") apps, created others and then make changes and publish etc. Can also be copied to your own server.



Is RPG/LE different to Node.js

The biggest differences

RPG

- Uses a synchronous process
- Uses stated program variables

Node.JS

- Uses a asynchronous process
- Uses loosely typed program variables

```
amount = 125.99;  
amount = "ABC";
```

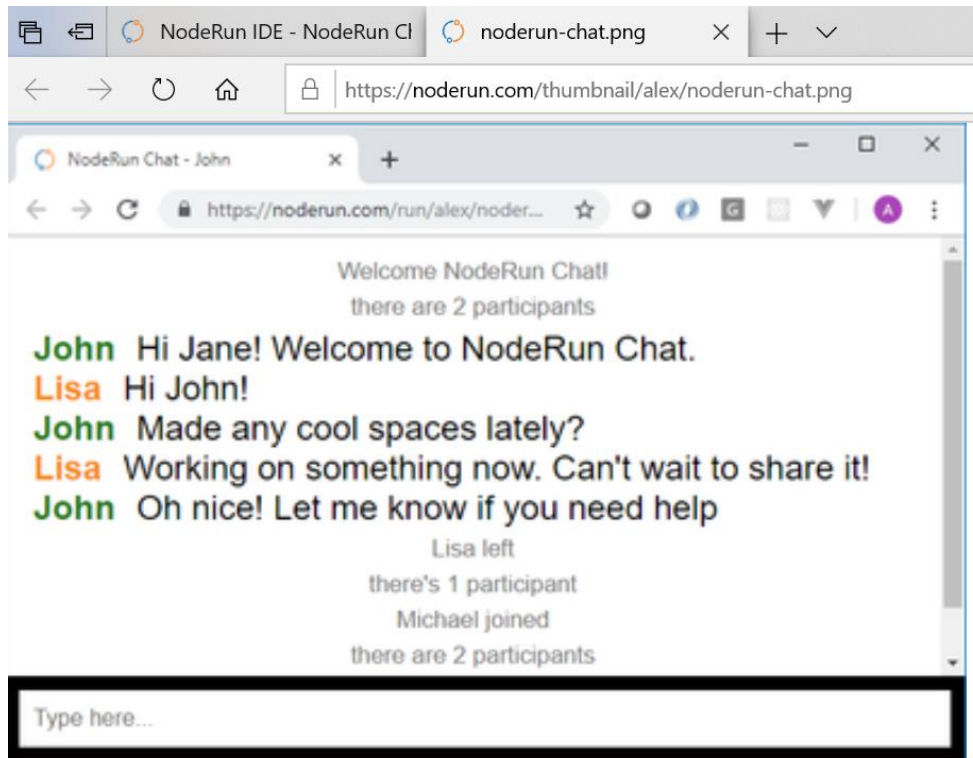


Examples

[Noderun Intro](#)

[Charts and graphs](#)

Chat





Examples

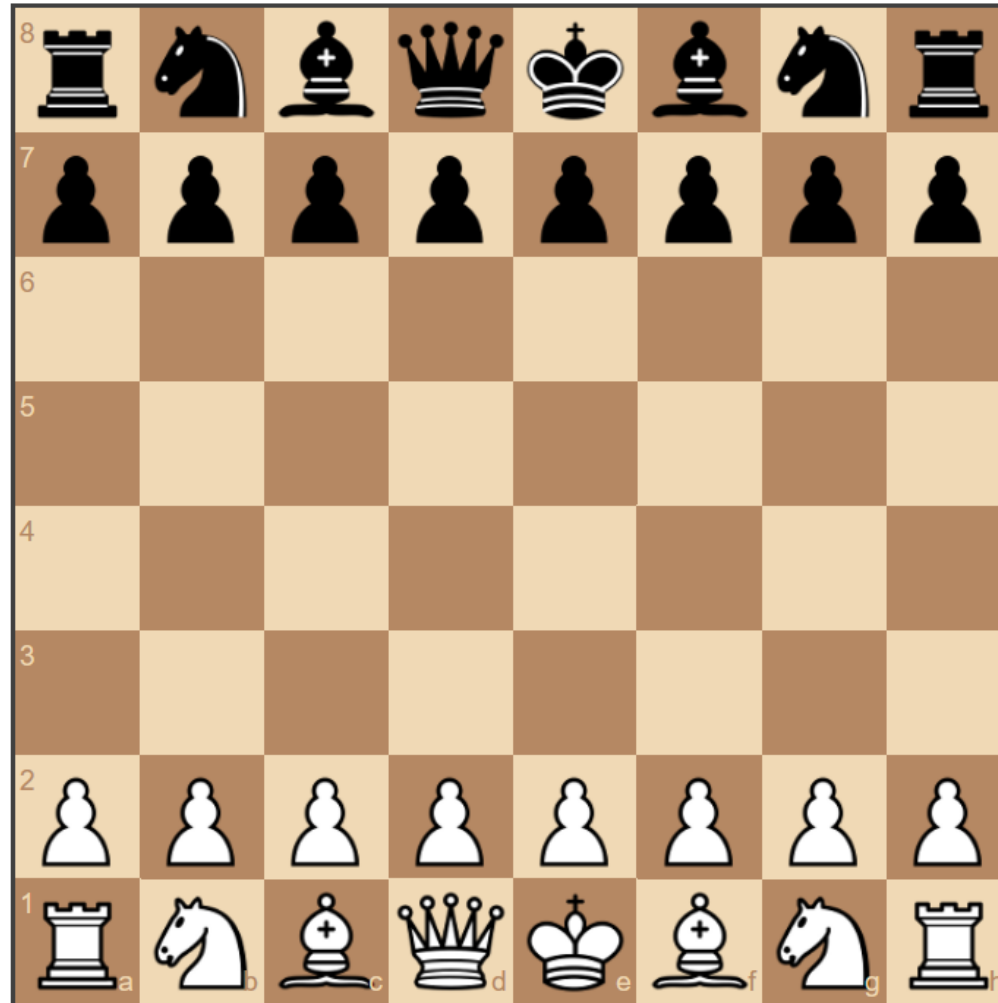
Program Source Code for charts

```
function app() {  
  
  pjs.defineDisplay("display", "app.json");  
  
  while (!quit) {  
    options = `theme="${theme}"`;  
    display.screen.execute();  
  }  
  
} exports.default = app;
```



Examples

Chess





Examples

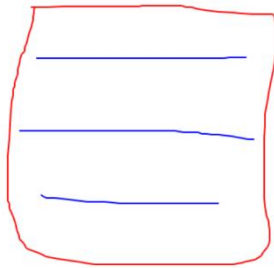
[Dashboards](#)

[Conference booking](#)



Collaborative whiteboard

Draw on the whiteboard and all other users connected to this application will see your drawings live!



H, Can you see
my Screen

Enjoy!

Based on Socket.io example



What's the point?

- The examples you have seen, may not fit your day to day needs, and some are just for fun.
- However based on the examples, can you see how these technologies can be used on the IBM i, and more importantly, in your environment?
- When anyone asks you, “can the AS400 do this....”, firstly challenge and educate them, it's an IBM i, and the answer is more likely to be, YES...



Social Media



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The end

[Show](#)