

Top 10 Tools for OpenEdge

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Overview

Category	Gilles	Dustin	Mike
OpenEdge Tools		REST-Out to PASOE Management	PDSOE
Eclipse / PDSOE Plugins	SonarSource Eclipse Plugin, wireframesketcher	Subclipse Adobe Source Code Pro	OEDT, Mylyn
Logfile viewer	Logviewer (Eclipse Plugin)	Notepad++	Baretailpro
Text Editors	vim	Notepad++	Sublime Text
Shell Extensions	Conemu, Powerline (bash and vi improvement)		
Web Development		Postman JSDO Catalog Viewer and Tester	WebStorm
Diff Tools	Beyond Compare	Beyond Compare	P4Merge
SCM	Github	SVN	Perforce
File Management			Total Commander + .pl Extension
OpenEdge Specific Open Source	smtpmail.p, DataDigger		Proparse
Build Automation, Test	Groovy, Docker	PCT and ANT, Jmeter	
Documentation Tools	Greenshot + licecap		OneNote

OEABL REST-Out

- Technically, the OEHttpClient library
- Basis for the WebHandler features in PAS
- A new “hidden gem” in the ABL
- Useful for scripting actions against OE Management
- Can query, trim, alter PAS instances
- <https://documentation.progress.com/output/oehttpclient/>



What a wonderful
documentation Website



Built with PCT and
SmartDox

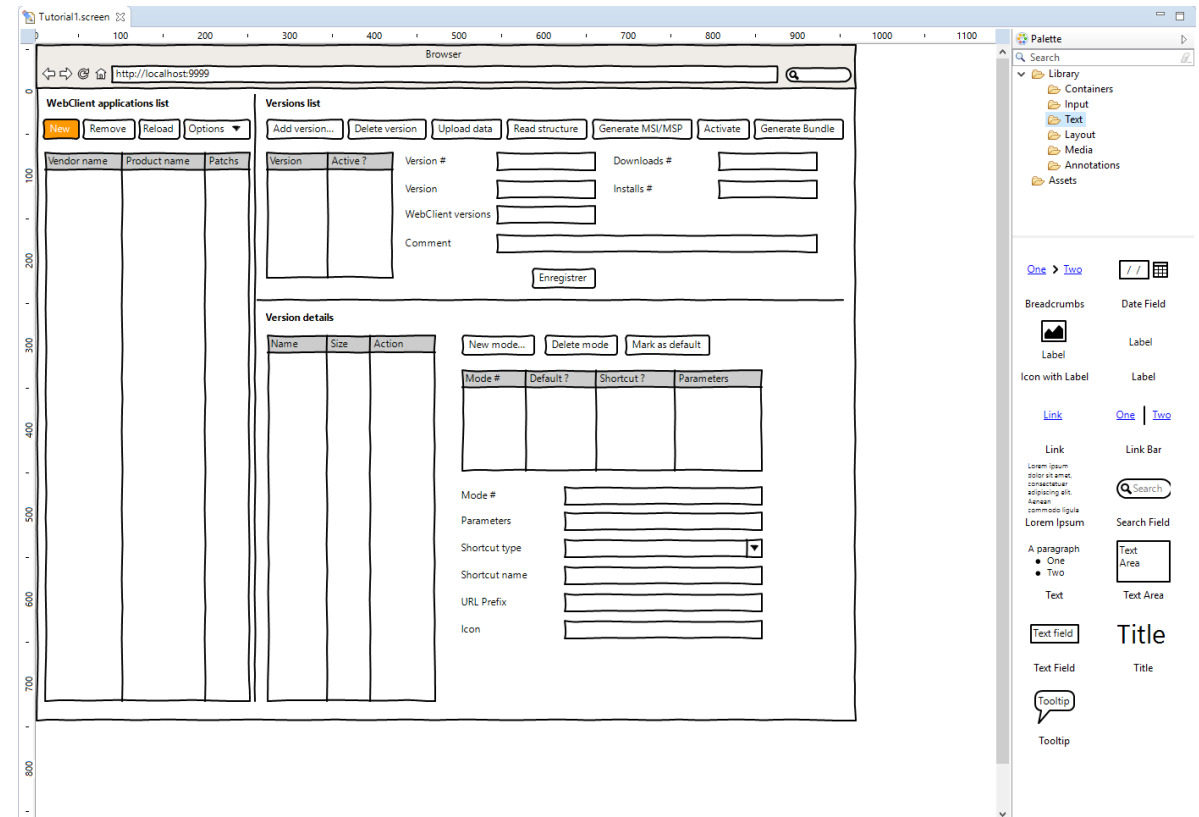
Progress Developer Studio



- If you're still using Procedure Editor or AppBuilder it's time to make the switch
- If you tried it in an earlier version, give it a second change. It has grown up ...
- Lots of productivity features for writing, building, testing ABL code
- More details in the „Progress Developer Studio extreme“ talk this afternoon!
- Project based IDE
- Extensible using Plugins

WireframeSketcher (Eclipse plug-in)

- Available as an Eclipse plug-in or a standalone application
<http://www.wireframesketcher.com>
- Approx. 100\$
- XML file format (easy versioning)
- JPG/PNG/PDF export



SonarLint (Eclipse plug-in)

- On-the-fly code quality analysis for OpenEdge and other languages
- Light blue underline
- Description available as a separate view
- No excuses anymore!



```
/*-----*/
Purpose:
Notes:
-----*/
@VisualDesigner.
METHOD PRIVATE VOID button1_Click( INPUT sender AS System.Object, INPUT e AS Syst

    DEFINE VARIABLE cTest AS CHARACTER NO-UNDO INIT "abc" .

    cTest = "def" .

    REPEAT:

    END.

END METHOD.

METHOD PRIVATE VOID InitializeComponent( ):

```

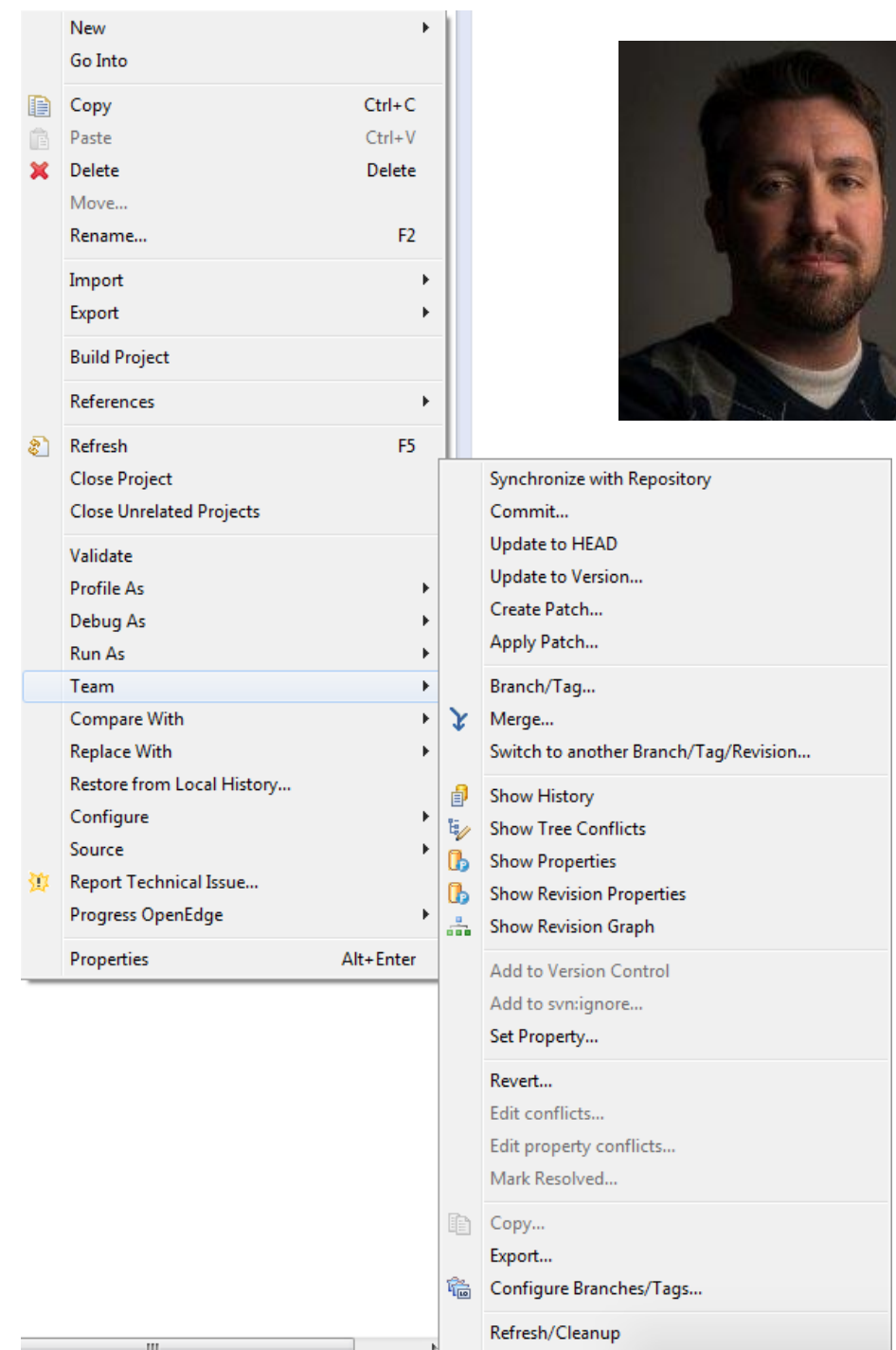
Console | Debug | SonarQube Servers | SonarLint Issue Locations | SonarLint On-The-Fly | SonarLint Rep

6 items

Date	Description	Resource
46 minutes ago	⬆ No :[R L C T][U] attribute in string	TestForm.cls
46 minutes ago	⬆ Variable cTest is assigned but never read	TestForm.cls
46 minutes ago	ⓘ Abbreviated keyword INIT for INITIAL	TestForm.cls
46 minutes ago	⬆ No :[R L C T][U] attribute in string	TestForm.cls
1 hour ago	⬆ No error handling directive for this REPEAT block	TestForm.cls
17 hours ago	⬆ No CATCH block in .Net event handler button1_Click	TestForm.cls

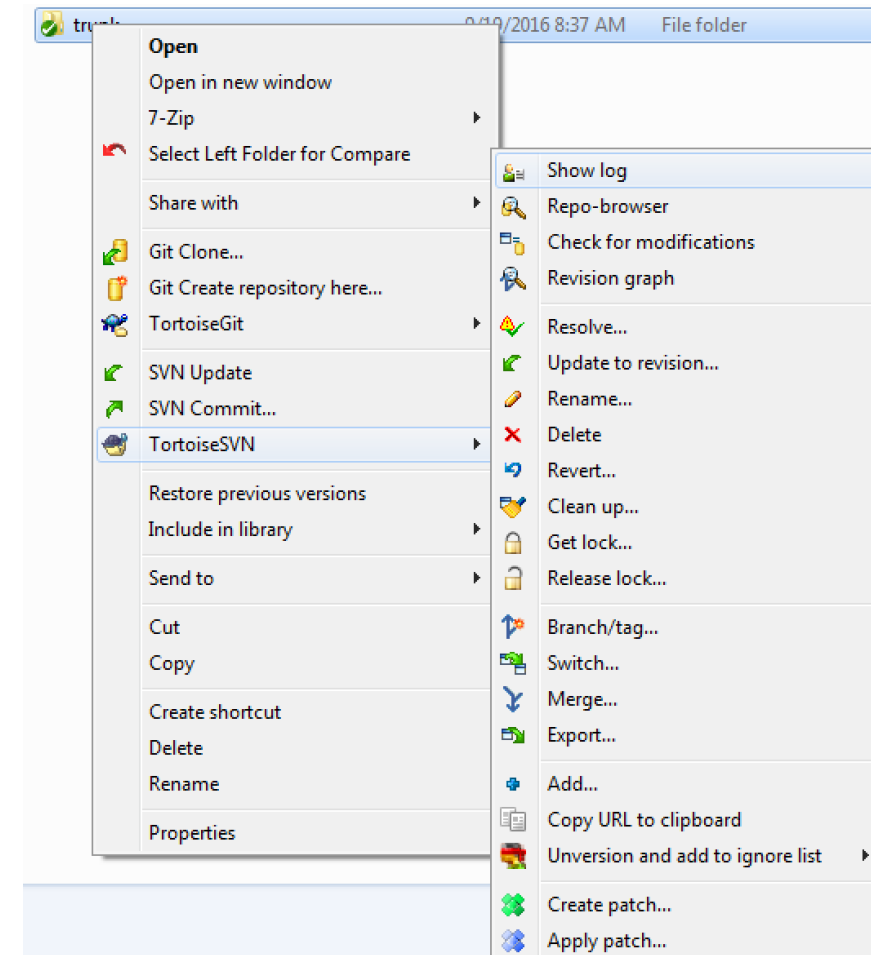
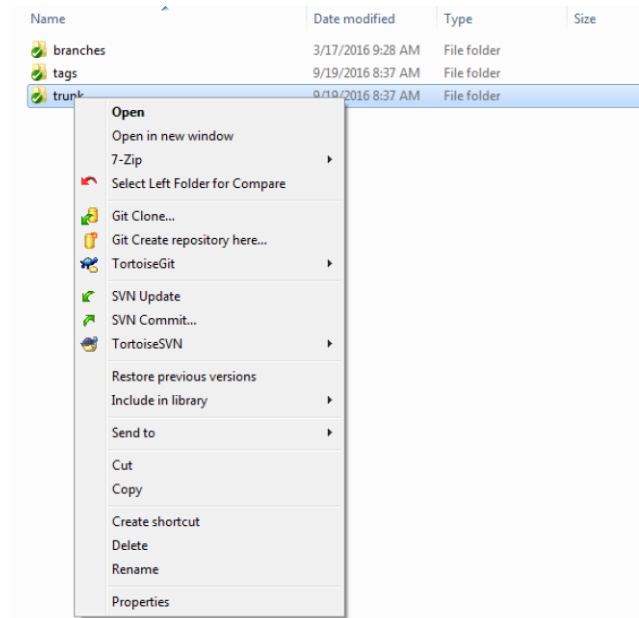
Subclipse

- SVN (Subversion) client for Eclipse
 - Open-Source Version Control System
- Adds a “Team” context menu



TortoiseSVN

- Windows SVN client with Explorer integration
- Adds a right-click context menu for folders
- Direct access to Update/Commit options
- Deeper menu options provide advanced features like branching



Adobe Source Code Pro

- Open Source font for coders!
- Reduces error from similar characters
- Example: 0 and O, 1 and l
- Use in any editor that supports custom fonts
- <https://github.com/adobe-fonts/source-code-pro>



ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789

OEDT



- Extension for Progress Developer Studio for OpenEdge
- Commercial Eclipse Plugin developed by H&H (a German Progress VAR)
- <https://www.hh-berlin.de/oedt/>
- Currently still in beta (expected until end of October 2016)
- Improved non-blocking builder
 - Dependency builder
 - Build Error Files
 - Preprocess/Debug Listing View
- Editor with *REAL* code completion
 - Fast
 - Method arguments

```
DEFINE VARIABLE cEntry AS CHARACTER NO-UNDO INIT "p,w,cls,i".  
DEFINE VARIABLE iEntry AS INTEGER NO-UNDO INIT 1.  
DEFINE VARIABLE cDelim AS CHARACTER NO-UNDO INIT ",".
```

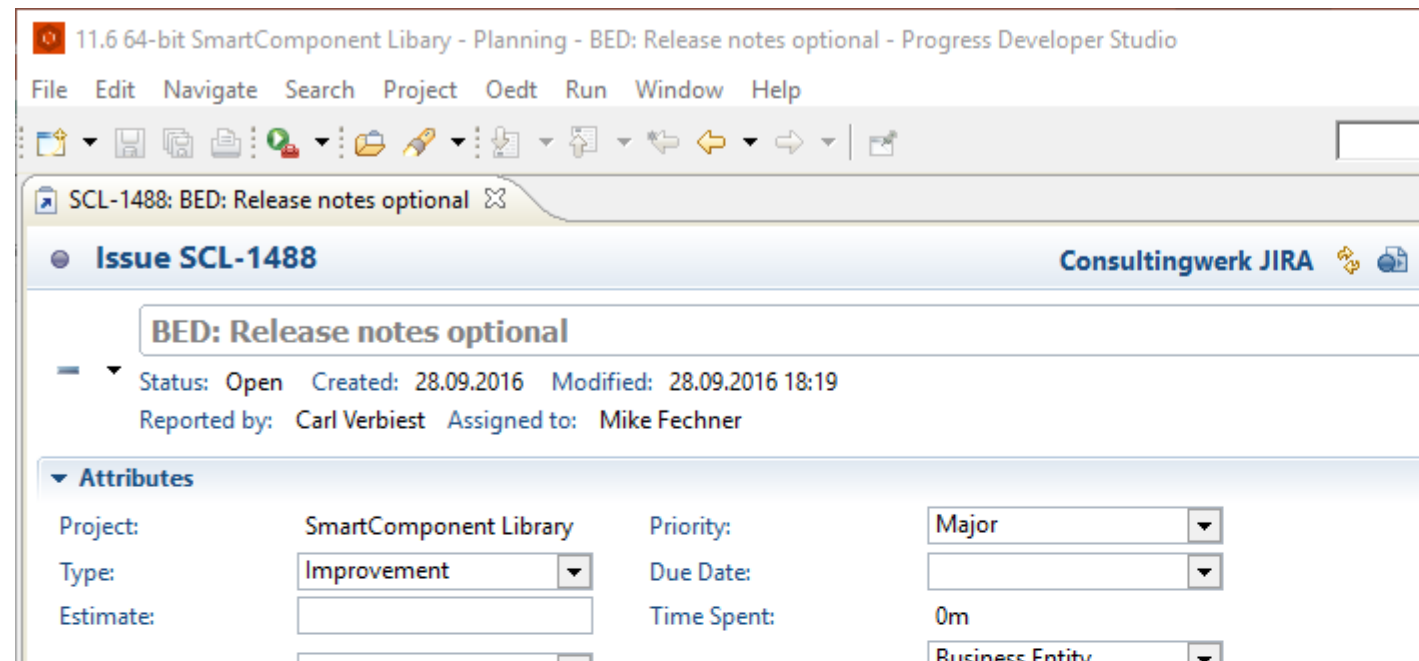
```
DEFINE VARIABLE ENTRY(integer, character, character): character  
cResult = ENTRY(element, list, delimiter)
```

The screenshot shows a code completion dropdown menu. The first option is 'iEntry : integer' with a small icon to its left. The second option is 'hhberlin.buildsystem.BuildPlugin'.

Mylyn



- Eclipse Foundation project
- Eclipse plugin with highest number of downloads
- Integrates within Eclipse and with each other
 - Task Repositories (issue tracking systems, e.g. JIRA, Bugzilla)
 - SCM Tools (Perforce, Git, SVN)
 - Build Monitoring (Jenkins)
 - Time Tracking
- Task Focussed UI

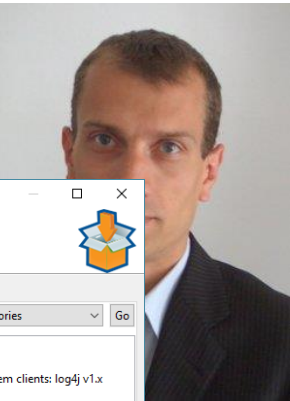
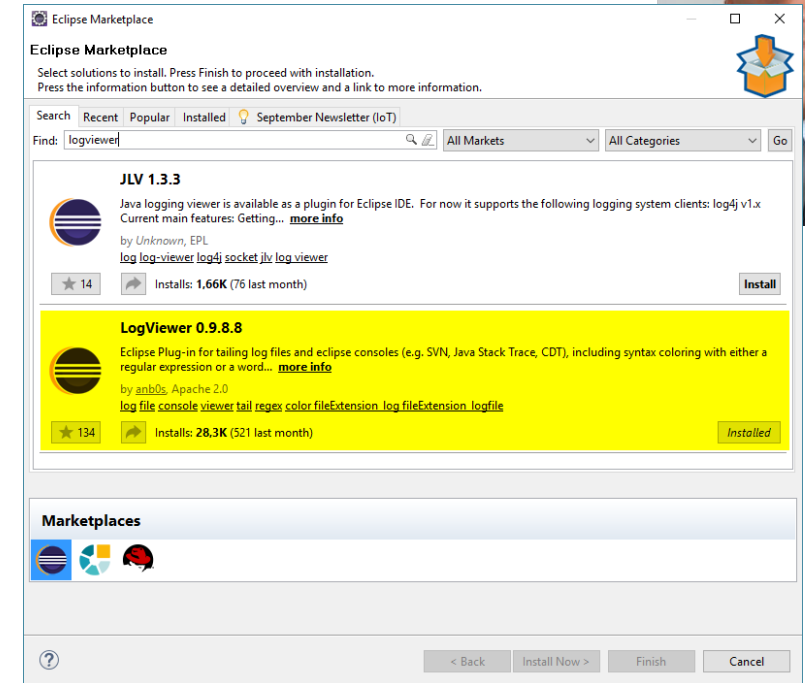


LogViewer (Eclipse plug-in)

- Available from the Marketplace
- Separate view in your workspace
- Can monitor as many files as you want
- Configurable syntax highlighting

```
output.txt sonar.log output.txt sp3k.lg
[2016/08/10@08:41:25.279+0200] P-9188 T-6724 I BROKER 0: (17717) TXE Lock retry limit (-TXERetryLimit): 0
[2016/08/10@08:41:25.279+0200] P-9188 T-6724 I BROKER 0: (13896) TXE Commit lock skip limit (-TXESkipLimit): 10000
[2016/08/10@08:41:25.280+0200] P-9188 T-6724 I BROKER 0: (10836) Database connections are not allowed at this time.
[2016/08/10@08:41:25.280+0200] P-9188 T-6724 I BROKER 0: (10471) Database connections have been enabled.
[2016/08/10@08:44:01.875+0200] P-1080 T-15168 I ABL 5: (452) Login by gquer on batch.
[2016/08/10@08:44:01.884+0200] P-1080 T-15168 I ABL 5: (7129) Usr 5 set name to gquer.
[2016/08/10@08:44:01.983+0200] P-1080 T-15168 I ABL 5: (453) Logout by gquer on batch.
[2016/08/10@08:45:34.866+0200] P-9576 T-13480 I ABL 5: (452) Login by gquer on batch.
[2016/08/10@08:45:34.870+0200] P-9576 T-13480 I ABL 5: (7129) Usr 5 set name to gquer.
[2016/08/10@08:45:34.971+0200] P-9576 T-13480 I ABL 5: (453) Logout by gquer on batch.
[2016/08/10@08:46:04.545+0200] P-4232 T-9888 I ABL 5: (452) Login by gquer on batch.
[2016/08/10@08:46:04.552+0200] P-4232 T-9888 I ABL 5: (7129) Usr 5 set name to gquer.
[2016/08/10@08:46:04.653+0200] P-4232 T-9888 I ABL 5: (453) Logout by gquer on batch.
[2016/08/10@08:47:15.075+0200] P-10984 T-13320 I ABL 5: (452) Login by gquer on batch.
[2016/08/10@08:47:15.082+0200] P-10984 T-13320 I ABL 5: (7129) Usr 5 set name to gquer.
[2016/08/10@08:47:15.181+0200] P-10984 T-13320 I ABL 5: (453) Logout by gquer on batch.

Wed Aug 24 17:30:25 2016
[2016/08/24@17:30:25.173+0200] P-4600 T-13704 I DBUTIL : (451) procopcy session begin for gquer on CON:.
```



BaretailPro



- Portable application (no installation required, copy to remote Desktop through RDP session)
- Fast
- Fast search on existing entries and search on
- Can remember last recently opened files
- Color Coding Log entries (“ERROR”, “** “)
- PRO Version 35,- US \$ (in bundle with Grep 50,- US\$)
- Free version available

A screenshot of the BareTailPro application window. The title bar reads "mrs2-pas.agent.log (24,3 MB) - BareTailPro". The menu bar includes "File", "Edit", "View", "Preferences", and "Help". The toolbar has icons for "Open", "Highlighting", and "Follow Tail", along with a dropdown menu set to "ANSI" and a file path "C:\Work\MTF\mrs2-pas\logs\...". The main window displays a list of log entries in a table-like format. Each entry starts with a timestamp in brackets, followed by several fields: "P-017732", "T-016524", "1", "AS-14", and a service name. The service names include "ServiceLoa", "APPL", and "MSAS Error". One entry is highlighted in yellow: "[16/05/06@11:32:05.092+0200] P-017732 T-016524 1 AS-14 -- Consultingw". Another entry is highlighted in grey: "[16/05/06@11:32:05.090+0200] P-017732 T-016524 1 AS-14 APPL".

Notepad++

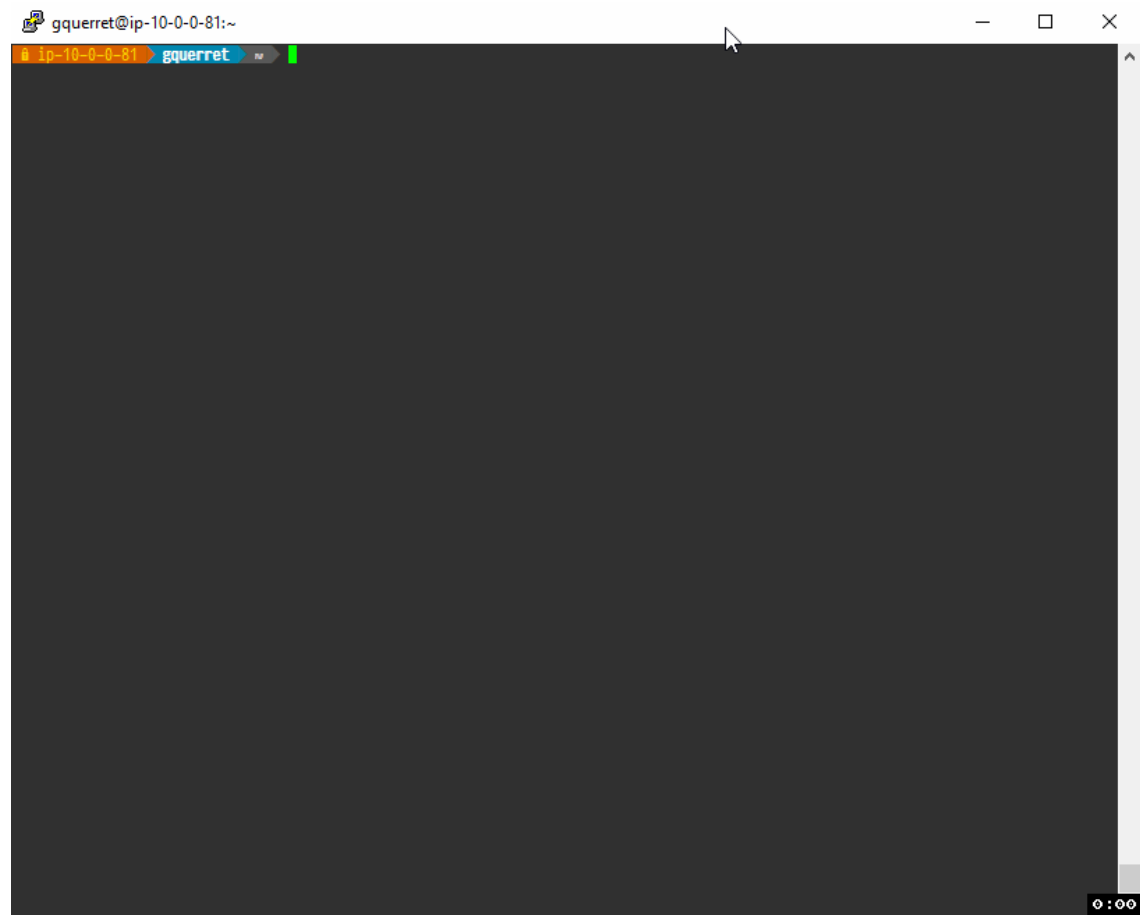


- File editor, WAAAAY better than Windows defaults
- Free (as in beer)!
- Can edit configuration files without corrupting them 😊
- Latest version allows you to “tail” a log file



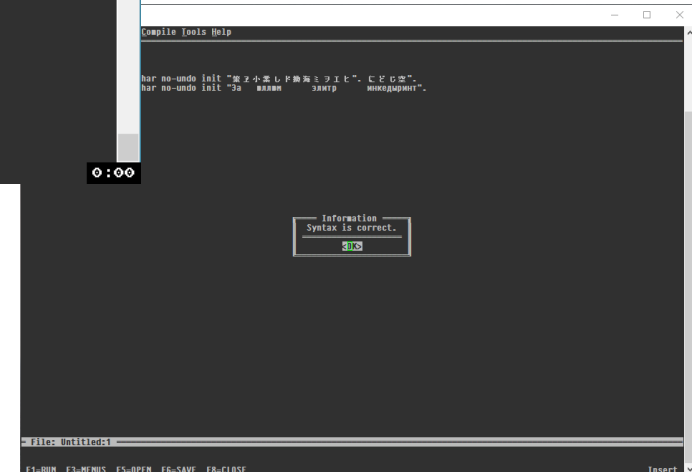
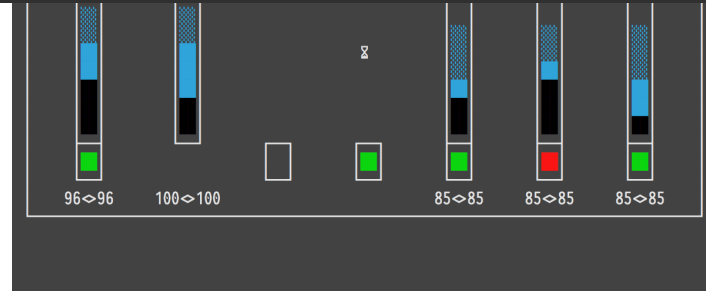
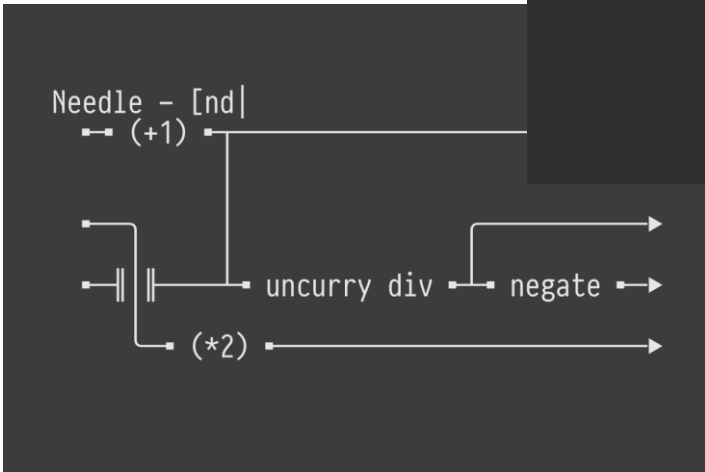
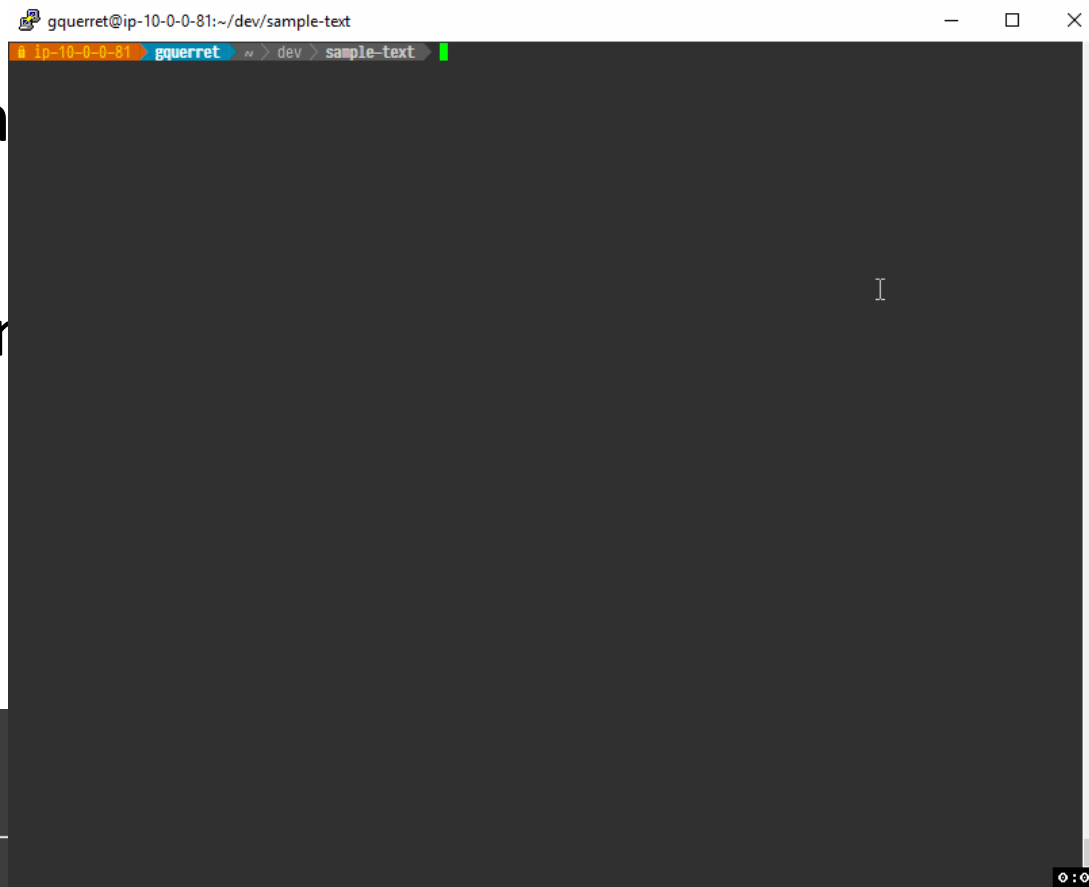
- **Update to 7.3.3 to fix CIA hacking issues!**
<https://notepad-plus-plus.org/news/notepad-7.3.3-fix-cia-hacking-issue.html>

ViM



ViM + PragmataPro

- Font design
- Quite exper



Sublime Text



- Fast
- Open Single File, open project folder
- Simple but effective Window Management (tabs)
- Extensive Configuration Options (JSON Files)
- Easy to copy config from one PC to another
- ABL syntax highlighters available: <http://gabsoftware.github.io/progress-abl-4gl-sublime-text/>
- Collapsible editing of JSON Files
- Can store unsaved files between sessions
- Very good all purpose editor (my F4 in Total Commander)

```
Customer2.json x view-factory.js — KendoUIBuilder\...Customer3-ccustomer x bottomSection.html x
602 OUTPUT TABLE tt
603
604 IF lExtendedLogging THEN DO:
605   LogManager:WriteMessage (SUBSTITUTE ("Found &1 .r files in &2":l
606                               BufferHelper:NumRecords(BU
607                               cRootDir),
608                               "ClassHelperExt":U) .
609 END.
610
611 fileLoop: FOR EACH ttFileNames ON ERROR UNDO, THROW:
612
613   ASSIGN cFile = ttFileNames.FileName .
614
615   RCODE-INFORMATION:FILE-NAME = cFile .
616
617   IF RCODE-INFORMATION:IS-CLASS THEN DO:
618
619     ASSIGN cClassName = SUBSTRING (cFile, LENGTH (cRootDir) + 2
620     cClassName = REPLACE (SUBSTRING (cClassName, 1, LENG
621     cClassName = REPLACE (SUBSTRING (cClassName, 1, LENG
622     NO-ERROR .
623
624   IF pcPrefix > "" :U THEN
625     ASSIGN cClassName = SUBSTITUTE ("&1.&2":U,
626                                   pcPrefix,
627                                   cClassName) .
628
629   IF lExtendedLogging THEN
630     LogManager:WriteMessage (SUBSTITUTE ("Processing class:
631                                   cClassName),
632                                   "ClassHelperExt":U) .
633
634   /* Exclude packages from scanning, that are known to contain
635   Business Entities */
636   IF pcBaseType = "Consultingwerk.OERA.BusinessEntity":U AND
637     cClassName BEGINS "Consultingwerk.":U AND NOT cClassName
638     NEXT.
639
640   ASSIGN lDotNetType = FileHelper:CanFindTextInBinaryFile ("S
```

```
CustomerBusinessEntity.json x Customer2.json x Customer.json x CustomerData2Provider.json x
234 "sortable": false,
235 "customSections": {
236   "top": "topSection.html",
237   "middle": "middleSection.html",
238   "bottom": "bottomSection.html"
239 },
240 "events": {
241   "onRowSelect": "onRowSelect"
242 }
243 },
244 ],
245 "readonly": false
246 },
247 {
248   "name": "sep",
249   "type": "view",
250   "schemaVersion": "1.0",
251   "viewType": "data-grid-separate-form",
252   "extension": "view-factory.js",
253   "events": {
254     "initEventHandler": "onInit",
255     "showEventHandler": "onShow",
256     "hideEventHandler": "onHide"
257   },
258   "children": [
259     {
260       "name": "ctl1",
261       "type": "data-grid-separate-form",
262       "schemaVersion": "1.0",
263       "title": "<Title>",
264       "extensionFolderName": "Customer2-sep",
265       "dataProvider": "",
266       "dataSource": "",
267       "columns": null,
268       "pageSize": 20,
269       "rowTemplateFunction": "",
270       "rowTemplateId": "",
271       "filterable": false,
272       "groupable": false,
```

A better Windows prompt



- ConEmu

- Multi
- Differ
- Std u

- Cmder

- ConE
- Porta

A screenshot of a Windows command prompt window titled 'cmd'. The window has a dark blue background and white text. The address bar shows the path 'C:\Users\gquerret\Projets\OpenEdgeDevTools'. The terminal output shows the following commands and results:

```
gquerret@DESKTOP001 C:\Users\gquerret\Projets\OpenEdgeDevTools
> dir
Volume in drive C has no label.
Volume Serial Number is E05E-88C9

Directory of C:\Users\gquerret\Projets\OpenEdgeDevTools
31/03/2016 12:34 <DIR>      .
31/03/2016 12:34 <DIR>      ..
24/08/2016 20:12 <DIR>      .hg
31/03/2016 12:34          0 .hgignore
22/08/2016 14:36 <DIR>      src
                1 File(s)      0 bytes
                4 Dir(s) 137 869 688 832 bytes free

gquerret@DESKTOP001 C:\Users\gquerret\Projets\OpenEdgeDevTools
> dir src\adebuild
Volume in drive C has no label.
Volume Serial Number is E05E-88C9

Directory of C:\Users\gquerret\Projets\OpenEdgeDevTools\src\adebuild
22/08/2016 14:36 <DIR>      .
22/08/2016 14:36 <DIR>      ..
31/03/2016 12:34          1 333 compmss.p
31/03/2016 12:34          1 337 compodb.p
31/03/2016 12:34          1 313 compora.p
22/08/2016 14:36          2 009 fxprg1.awk
22/08/2016 14:36          2 002 fxprg2.awk
22/08/2016 14:36          2 671 fxprg3.awk
31/03/2016 12:34          784 nogateway.p
22/08/2016 14:36       75 748 pbuild
22/08/2016 14:36          8 281 pbuildfxprg
31/03/2016 12:34          1 204 pbuildfxprgawk.prg
31/03/2016 12:34          1 942 README.txt
                11 File(s)    98 624 bytes
                2 Dir(s) 137 869 574 144 bytes free

gquerret@DESKTOP001 C:\Users\gquerret\Projets\OpenEdgeDevTools
> |
```

...)

ools, ...)

cmdr

- Carl Verbiest: How to proenv using cmdr
- <https://community.progress.com/communal/f/26/t/17758>



The screenshot shows a Windows Command Prompt window titled "Cmder". The text in the window is as follows:

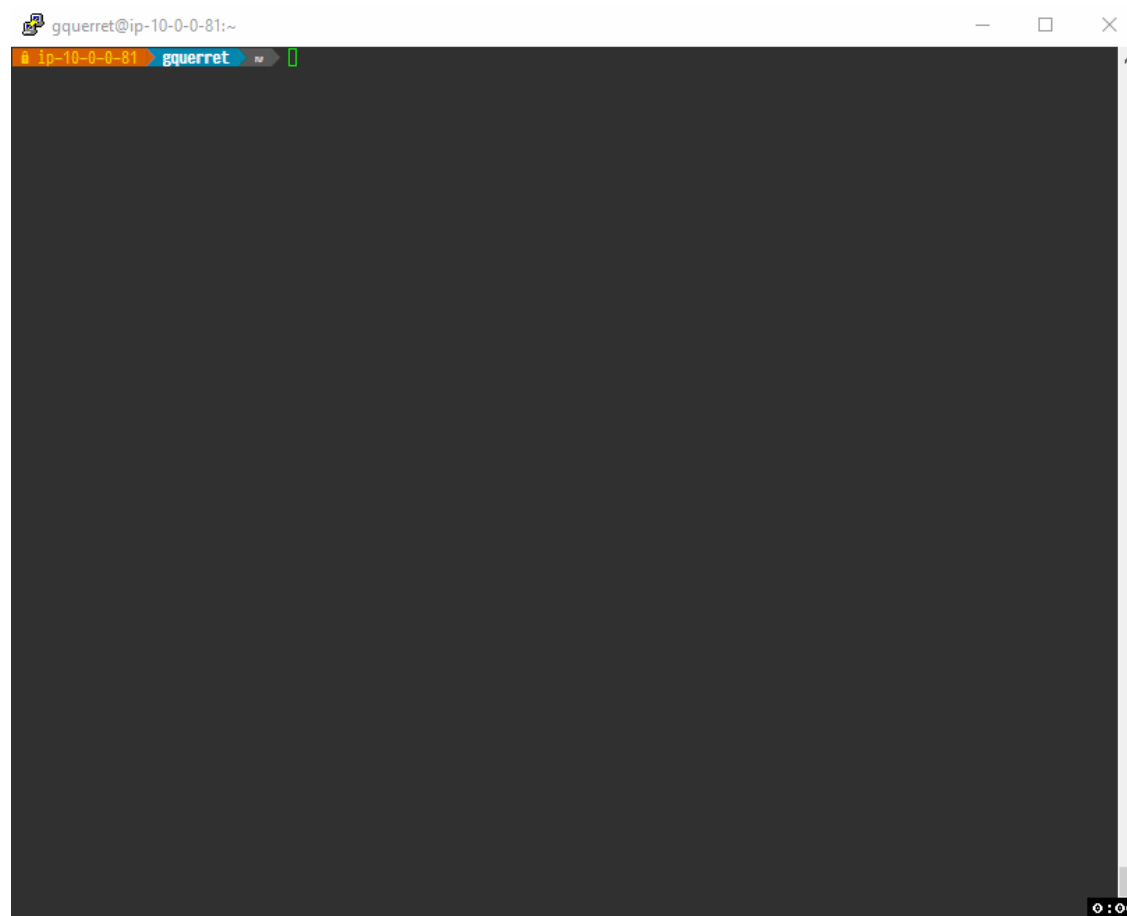
```
DLC: C:\Progress\OP4A0D~1
Inserting C:\Progress\OP4A0D~1\bin to beginning of path and
the current directory is
c:\Work

OpenEdge Release 11.6.3 as of Thu Sep  8 19:01:50 EDT 2016
11.6 64 c:\Work> |
```

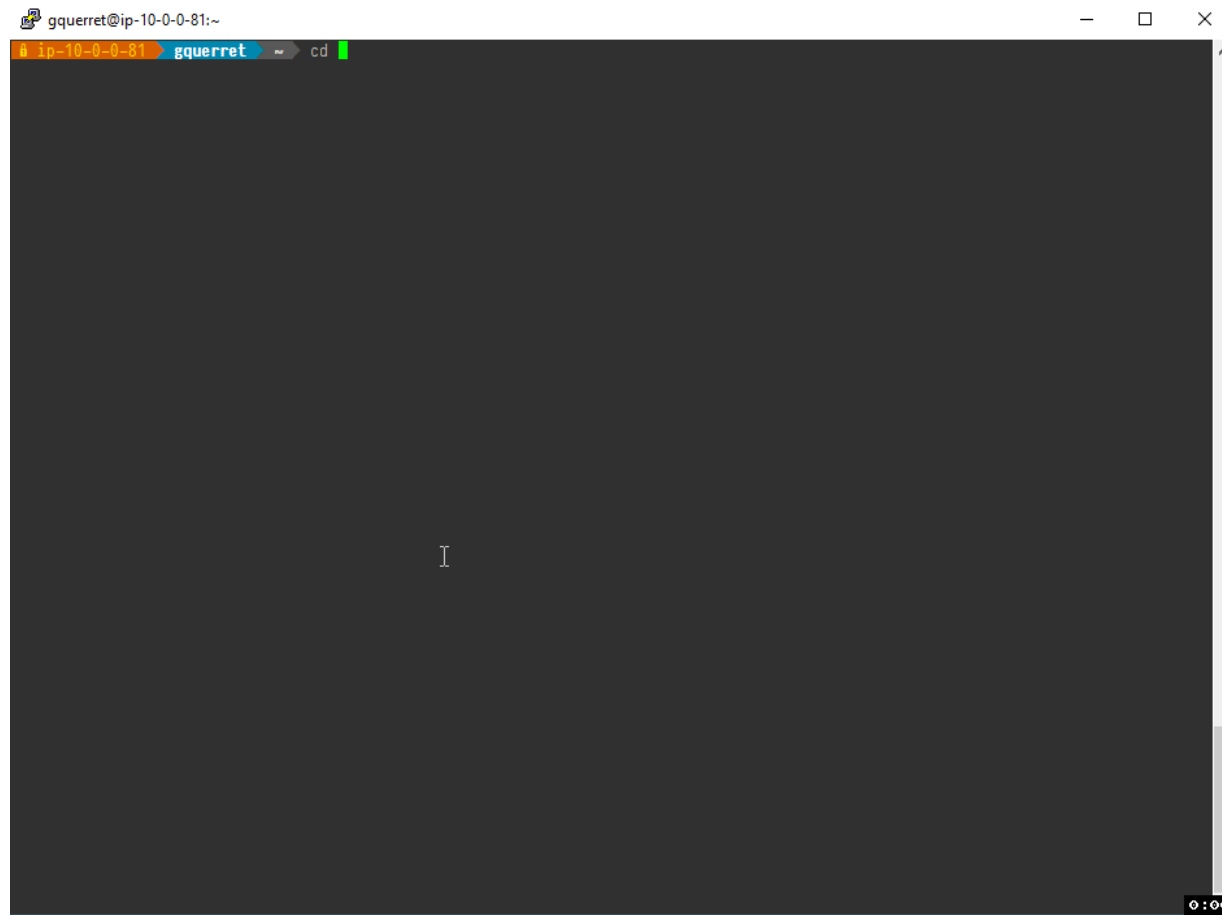
A context menu is open over the command prompt, listing various shell profiles. The profile "4: {proenv_11.6_64}" is selected and highlighted in blue. The menu also includes options like "Clear history...", "Setup tasks...", and "New console dialog...".

A better Unix prompt - Powerline

- <https://github.com/powerline/powerline>



Powerline



Postman

- <https://www.getpostman.com/>
- Chrome App and Mac App
- Can test API's



Catalog Viewer

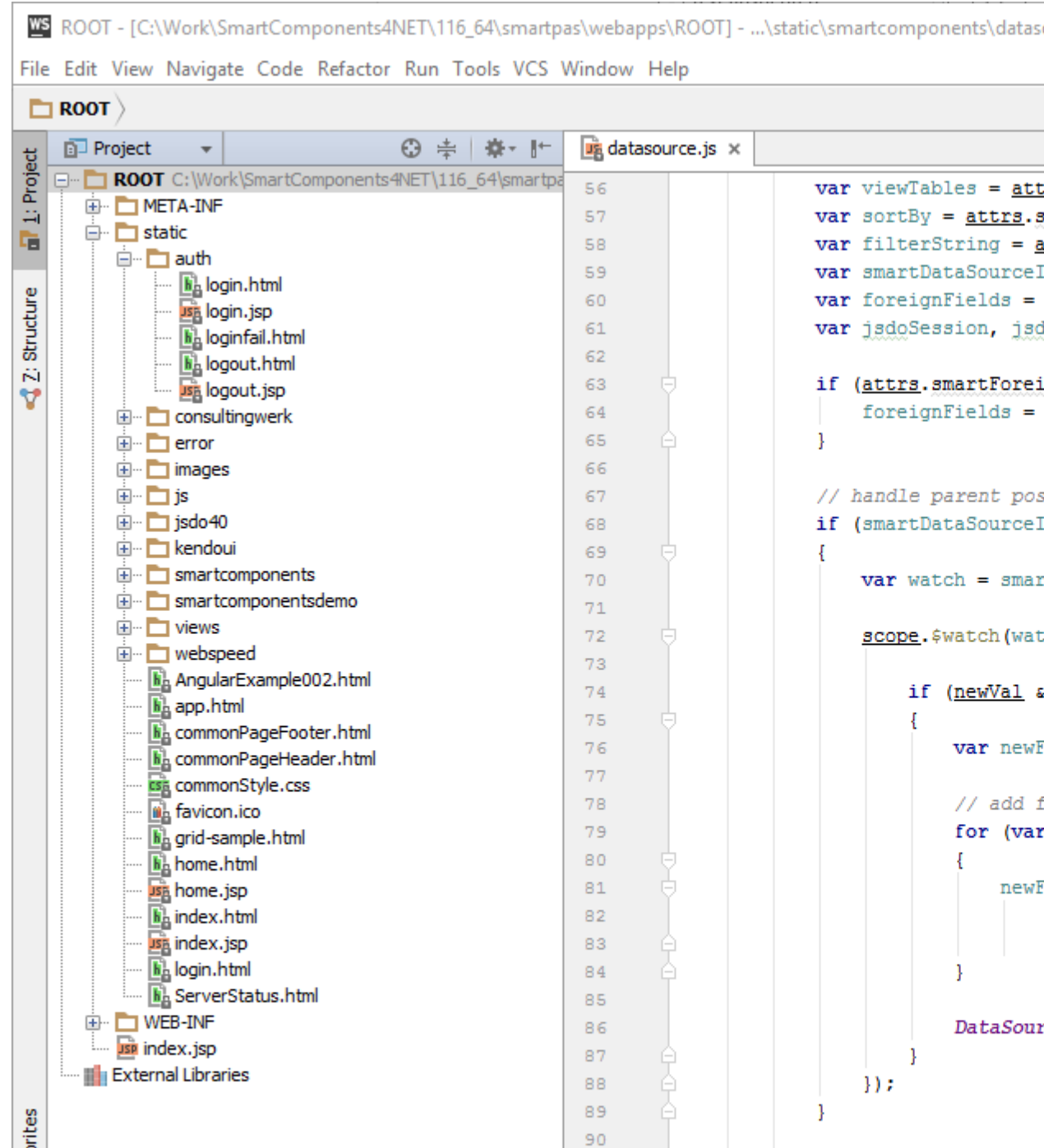
- Custom application from Progress Services (myself, actually)
- Reads the Data Object Service Catalog as used by the JSDO
- <https://github.com/DustinGrau-PSC/CatalogViewer>
- Standalone HTML file (Kendo+jQuery)
- Can view catalog structure
- Lists all Services + Resources
- Also, Operations + Schema
- Execute API's (like Postman)



The screenshot shows the 'Catalog Viewer' web application. At the top, there's a blue header with the title 'Catalog Viewer'. Below it, a 'Catalog URL' input field contains 'https://localhost:8821/DynSports/web/pdo' and a 'Load Catalog' button. A dropdown menu for 'Service' is set to 'Common (/web/pdo/common)'. On the left, a tree view shows the catalog structure: 'dashboard', 'HelloWorld', 'locality', 'user' (expanded), 'contextFetch', 'contextStore', 'locale', 'menu', 'session' (highlighted), and 'webdata'. On the right, the 'Operation Details' section shows 'INVOKE [GET] (Invoked as 'session' in JSDO)' with the URL 'https://localhost:8821/DynSports/web/pdo/common/user/session'. Below this are sections for 'Parameters', 'Sample Code', 'Request Data' (with a 'Run API' button), and 'Response Data'. At the bottom, there's a 'Schema' section.

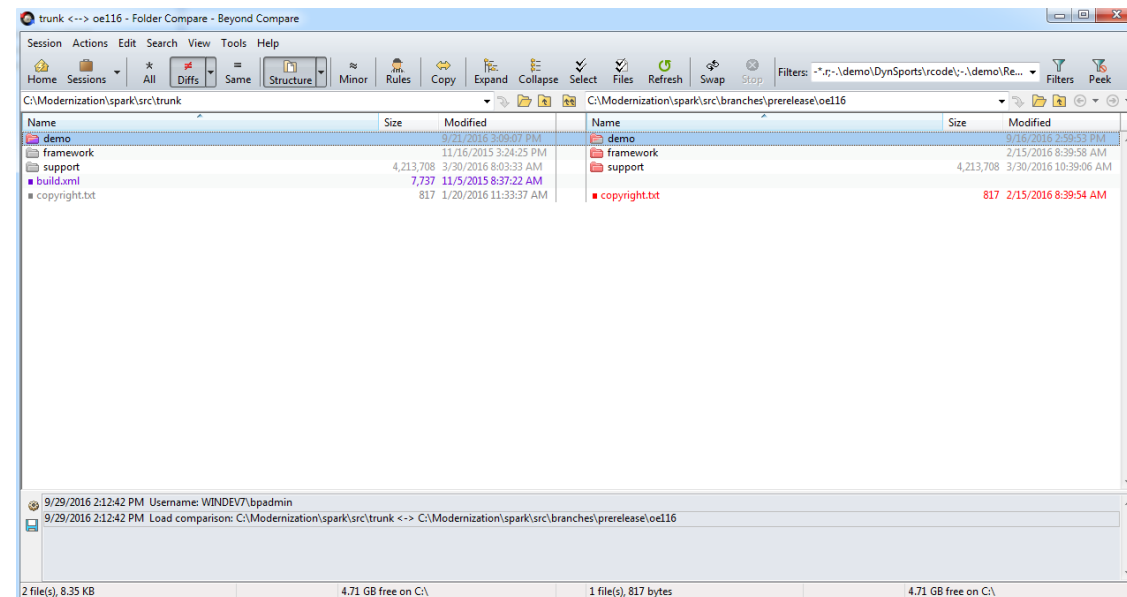
Jetbrains WebStorm

- JavaScript and html IDE
- Smart Editor (code completion by assumption)



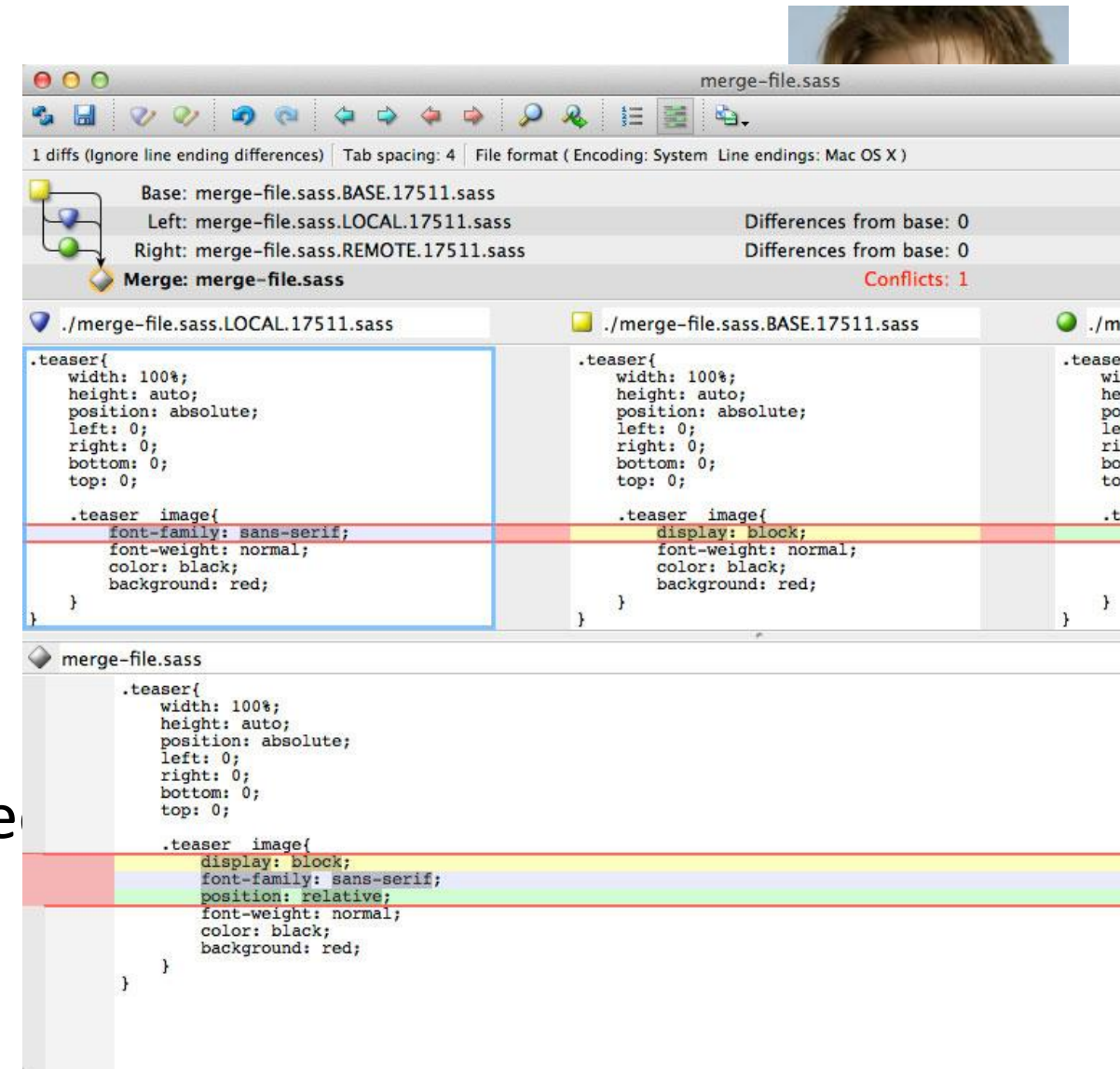
Beyond Compare

- File comparison/merging tool
- Cross-platform: Windows, Mac, Linux
- Perform rules-based, binary, or CRC comparisons
- Can exclude/filter files by name or type
- Save and organize comparisons for later
- Handles character and binary files
- Will manage very large directories



P4Merge

- File diff and Merge
- 3-way merge: Two versions of a file, common predecessor, merged version
- Merge utility of Perforce SCM
- Can be used for Git Merge (SourceTree)
 - THE way to survive Git Merge



The screenshot shows a 3-way merge interface for a file named 'merge-file.sass'. The interface includes a toolbar at the top, a status bar indicating '1 diffs (ignore line ending differences)', 'Tab spacing: 4', and 'File format (Encoding: System Line endings: Mac OS X)'. Below the toolbar, a diagram shows the merge process with 'Base: merge-file.sass.BASE.17511.sass', 'Left: merge-file.sass.LOCAL.17511.sass', and 'Right: merge-file.sass.REMOTE.17511.sass'. The 'Merge: merge-file.sass' section shows 'Conflicts: 1'. The main area displays three panels: the local version (left), the base version (middle), and the remote version (right). The local and base versions show a conflict in the '.teaser image{' block, where the local version has 'font-family: sans-serif;' and the base version has 'display: block;'. The remote version has 'display: block;' and 'position: relative;'. The merged version at the bottom shows the conflict resolution with 'display: block;', 'font-family: sans-serif;', and 'position: relative;'.

```
merge-file.sass
1 diffs (ignore line ending differences) | Tab spacing: 4 | File format ( Encoding: System Line endings: Mac OS X )
Base: merge-file.sass.BASE.17511.sass
Left: merge-file.sass.LOCAL.17511.sass
Right: merge-file.sass.REMOTE.17511.sass
Merge: merge-file.sass
Conflicts: 1

./merge-file.sass.LOCAL.17511.sass
.teaser{
width: 100%;
height: auto;
position: absolute;
left: 0;
right: 0;
bottom: 0;
top: 0;
}
.teaser image{
font-family: sans-serif;
font-weight: normal;
color: black;
background: red;
}

./merge-file.sass.BASE.17511.sass
.teaser{
width: 100%;
height: auto;
position: absolute;
left: 0;
right: 0;
bottom: 0;
top: 0;
}
.teaser image{
display: block;
font-weight: normal;
color: black;
background: red;
}

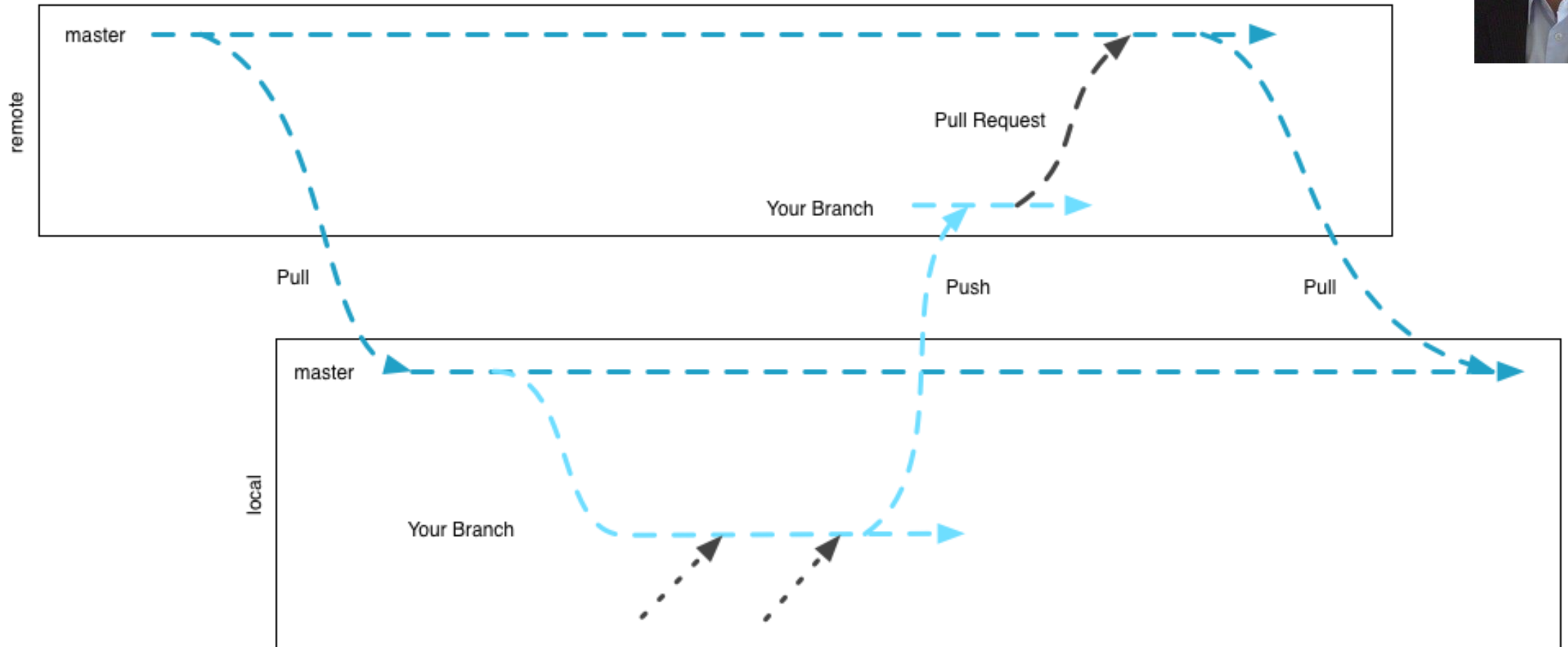
merge-file.sass
.teaser{
width: 100%;
height: auto;
position: absolute;
left: 0;
right: 0;
bottom: 0;
top: 0;
}
.teaser image{
display: block;
font-family: sans-serif;
position: relative;
font-weight: normal;
color: black;
background: red;
}
}
```

Git & GitHub / BitBucket server



- Like it or not, Git has won the battle in OSS code repositories
 - R.I.P Mercurial, I'll regret you
- Steep learning curve
 - Any developer should take one or two days to **really** understand how Git works
 - Otherwise, your life will be miserable...
- GitHub and BitBucket server offer services on top of Git

GitHub pull requests



SVN



Perforce

- Commercial SCM Tool, free versions for smaller tools
- Hosted offering available
- Centralized SCM with Cache, Proxy, Git Integration
- **Very, very strong** in branching and merging
- Remembers previous conflict resolution
- Branching on code lines, within a code line, within a single file
- Easily maintain large code lines edited by 3rd parties
- Command line, GUI client, Eclipse Plugin, VS-Plugin

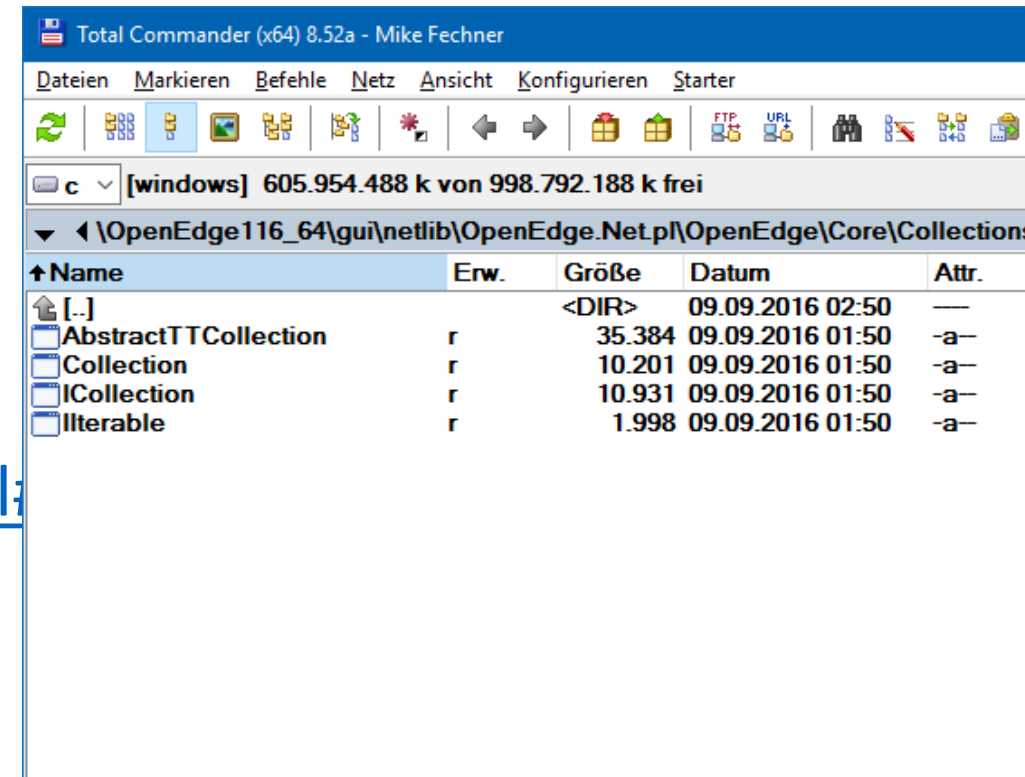


Total Commander



- (Windows Commander)
- Everybody needs a Norton Commander Clone
- 2 pane managment
- Local Files
- Network Files
- ZIP Files
- Extension from .PL Files:

<http://progress-tools.x10.mx/plplugin.html>



Free Framework / Data digger

- smtpmail.p
- DataDigger



Proparse



- ABL Syntax Parser
- Foundation for automated code QA and refactoring
- Java based, embedded into .NET, accessible on Progress GUI
- Different forks available
 - OEHive: <https://github.com/oehive/proparse> (original author)
 - Consultingwerk: <https://github.com/consultingwerk/proparse>
 - Riverside: <https://github.com/Riverside-Software/proparse> (for SonarSource)
- Actively maintained (again) – should support 11.6 syntax

File

Start

Editor



Open

Parse from
Clipboard

Start

Open
File

Source Code



Window

View

Parser Tree

Parser Tree

ROUTINELEVEL	JPNode	ROUTINE-LEVEL	ROUTINELEVEL...
USING	JPNode	USING	USING "USING"...
USING	JPNode	USING	USING "USING"...
CLASS	JPNode	CLASS	CLASS "CLASS"...
TYPE_NAME	JPNode	Consultingwerk.L...	TYPE_NAME...
IMPLEMENTS	JPNode	IMPLEMENTS	IMPLEMENTS...
LEXCOLON	JPNode	:	LEXCOLON ":"...
Code_block	JPNode		Code_block ""...
METHOD	BlockNode	METHOD	METHOD...
PUBLIC	JPNode	PUBLIC	PUBLIC...
VOID	JPNode	VOID	VOID "VOID"...
ID	JPNode	Write	ID "Write"...
Parameter_list	JPNode		Parameter_list ""...
LEFTPAREN	JPNode	(LEFTPAREN "("...
INPUT	JPNode		INPUT ""...
ID	JPNode	pcText	ID "pcText"...
AS	JPNode	AS	AS "AS"...
CHARACTER	JPNode	CHARACTER	CHARACTER...
RIGHTPAREN	JPNode)	RIGHTPAREN ")"...
LEXCOLON	JPNode	:	LEXCOLON ":"...
Code_block	JPNode		Code_block ""...
END	JPNode	END	END "END"...
PERIOD	JPNode	.	PERIOD "."...
METHOD	BlockNode	METHOD	METHOD...
END	JPNode	END	END "END"...
PERIOD	JPNode	.	PERIOD "."...
Program_tail	JPNode		Program_tail ""...

AblPrimitiveList.i

LogfileOutputStream.cls

```

Syntax      :
Description :
Author(s)   : Mike Fechner / Consultingwerk Ltd.
Created    : Thu Mar 07 22:11:30 CET 2013
Notes      : The Write () method does not support writing to
              without a trailing new line

```

```

ROUTINE-LEVEL ON ERROR UNDO, THROW.

```

```

USING Consultingwerk.* FROM PROPATH .
USING Progress.Lang.* FROM PROPATH .

```

```

CLASS Consultingwerk.LogfileOutputStream IMPLEMENTS IOutputStream

```

```

/*-----
Purpose: Writes text to the output destination
Notes:
@param pcText The text for the output
-----*/

```

```

METHOD PUBLIC VOID Write (pcText AS CHARACTER):

```

```

    Consultingwerk.Util.LogManager:WriteMessage (pcText) .

```

```

END METHOD.

```

```

/*-----
Purpose: Writes text to the output destination and termin
line break
Notes:
@param pcText The text for the output
-----*/

```

ANT and PCT

- Eclipse can execute ANT tasks!
- Ant Build in External Tools Configuration
- Where there's ANT, there's PCT



External Tools Configuration

Create, manage, and run external tools

Run an Ant build file.

type filter text

- Ant Build
 - Copy App Files (ReaPAS)
 - Copy App Files (SportsPASOE)
 - Start Server (ReaPAS)
 - Start Server (SportsPASOE)
 - Trim Agents (ReaPAS)
 - Trim Agents (SportsPASOE)
- API Use Report
- Program

Groovy

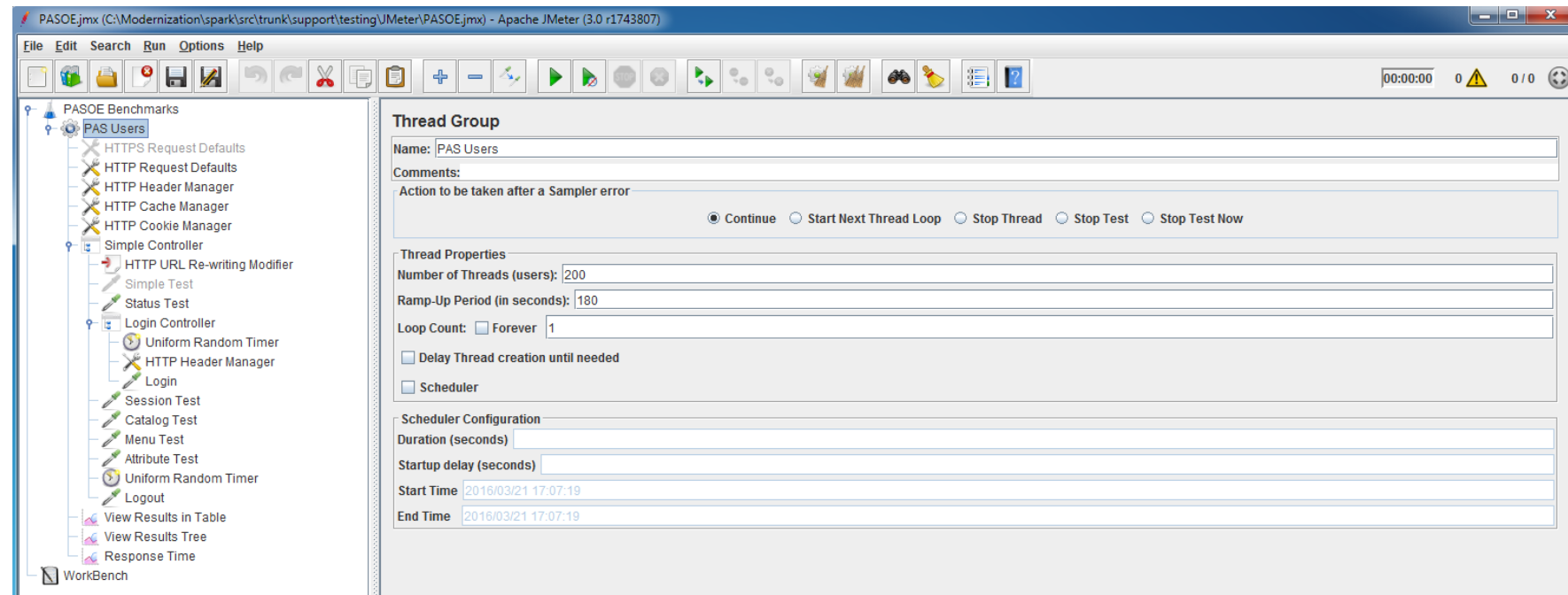
- Java scripting language
 - Absolutely not related to JavaScript !
 - A scripting language converted on the fly to Java code
 - Entire Java API is available
 - Ant is available
 - So is PCT !



```
gquerret@ip-10-0-0-81:~  
def ant = new AntBuilder()  
ant.taskdef(name: 'PCTRun', classname: 'com.phenix.pct.PCTRun')  
ant.PCTRun (procedure: 'foo/bar/test.p', dlcHome: env.dlc) {  
    ['db1', 'db2', 'db3'].each { DbConnection(dbname: it, dbDir: 'db', singleUser: true) }  
}
```

JMeter

- Open Source java load test and performance measuring tool
- <http://jmeter.apache.org/>
- Can simulate user load
- Scriptable actions
- Report output
- Log requests
- Log errors
- View metrics



Greenshot / LICEdcap

- All my screenshot done with Greenshot
 - <http://www.getgreenshot.org>
- Animated screenshots with LICEdcap
 - <http://www.cockos.com/licecap>



OneNote

- Microsoft's Note Taking application (MS version of Evernote)
- Clients for Windows, Mac, Mobile Devices and Web Browser
- Share Notebooks with Team-Members
- Simple and effective Team-Wiki
- Synchronization for Offline Usage
- Simultaneous editing by multiple users

And what are the audience favorites?