Where is Wally, eh Zowe !

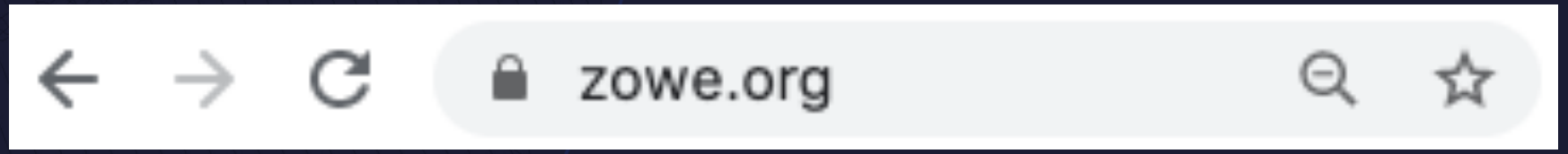
What is Zowe?

Tobias Leicher | zClient Architect

Charts by Joe Winchester, IBM Hursley

THE LINUX FOUNDATION

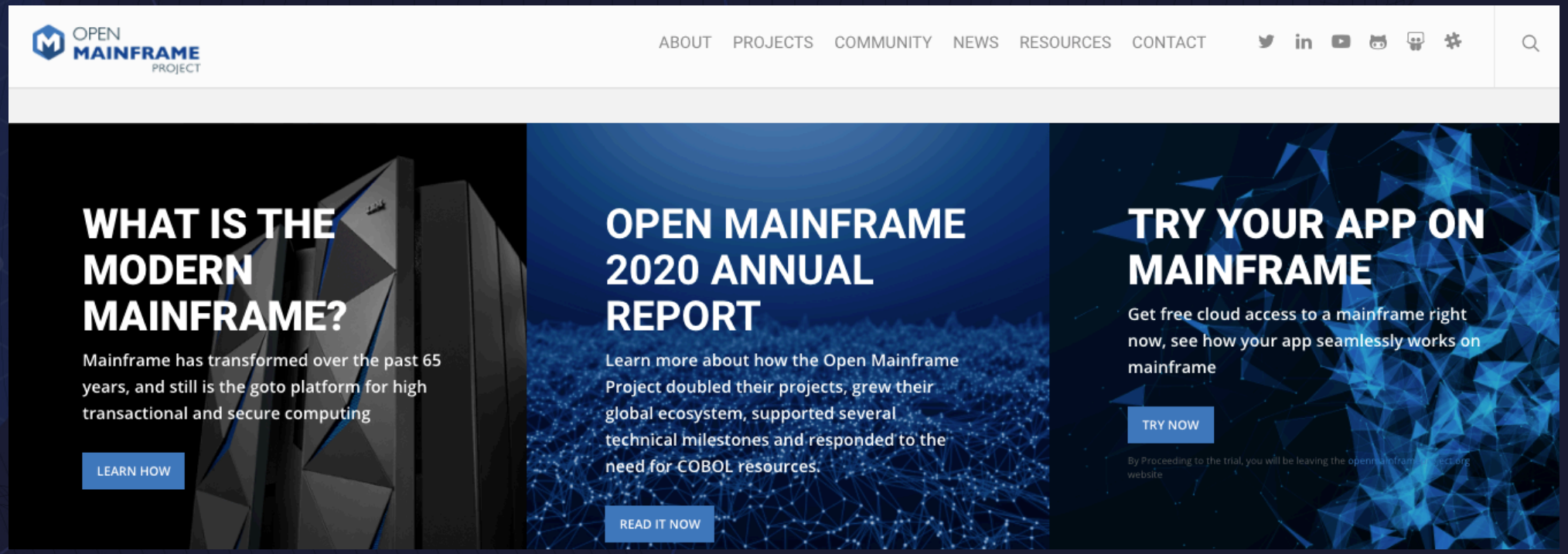
The Linux Foundation and the projects we support form the most ambitious and successful investment in the creation of shared technology



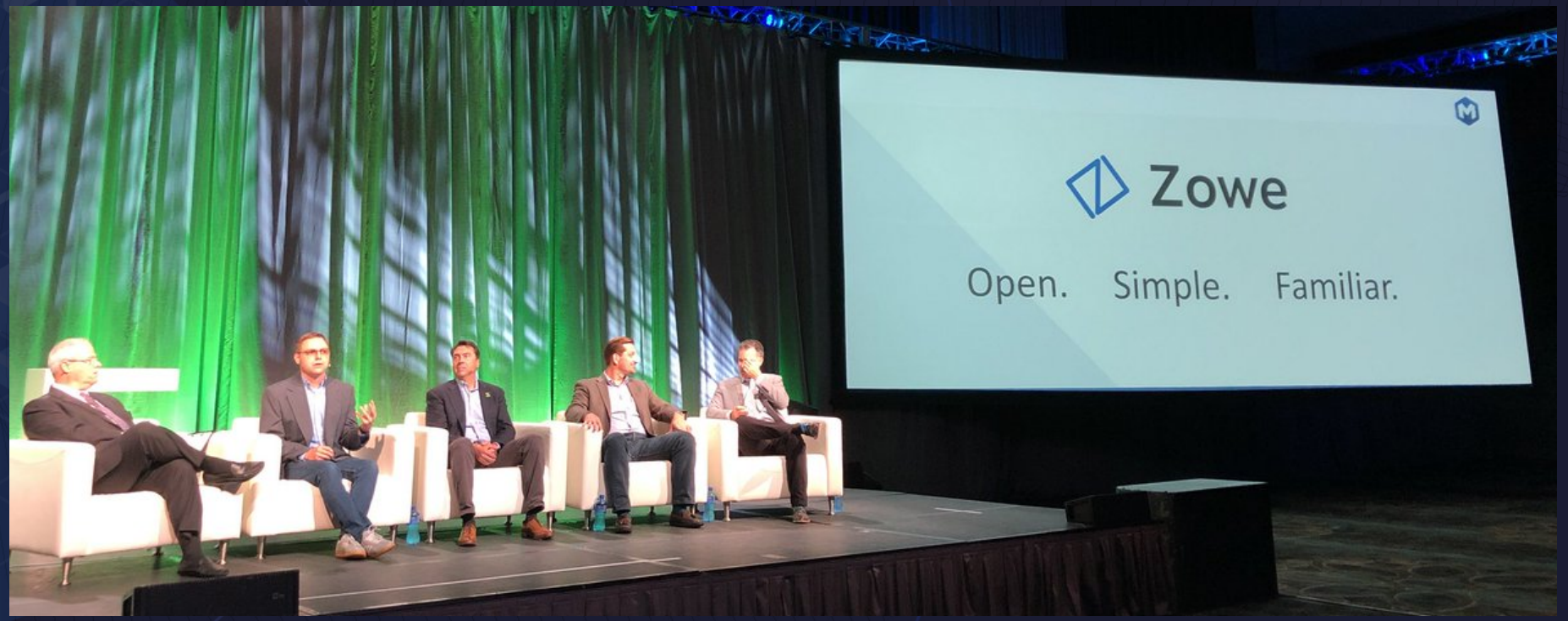
Open Mainframe Project

From Wikipedia, the free encyclopedia

Open Mainframe Project is a Collaborative Project managed by the Linux Foundation to encourage the use of Linux-based operating systems and open source software on mainframe computers.[1] The project was announced on August 17, 2015 and was driven by IBM, a major supplier of mainframe hardware, as well as 16 other founding members, that included SUSE, CA Technologies, BMC Software, Compuware as well as clients and partners such as RSM Partner, Vicom Infinity, L3C LLP and ADP, and academic institutions such as Marist College and University of Bedfordshire.[2] Coincident with the announcement, IBM also announced a partnership with Canonical to make the Ubuntu operating system available for their high-end z Systems hardware.[3][4][5][6]



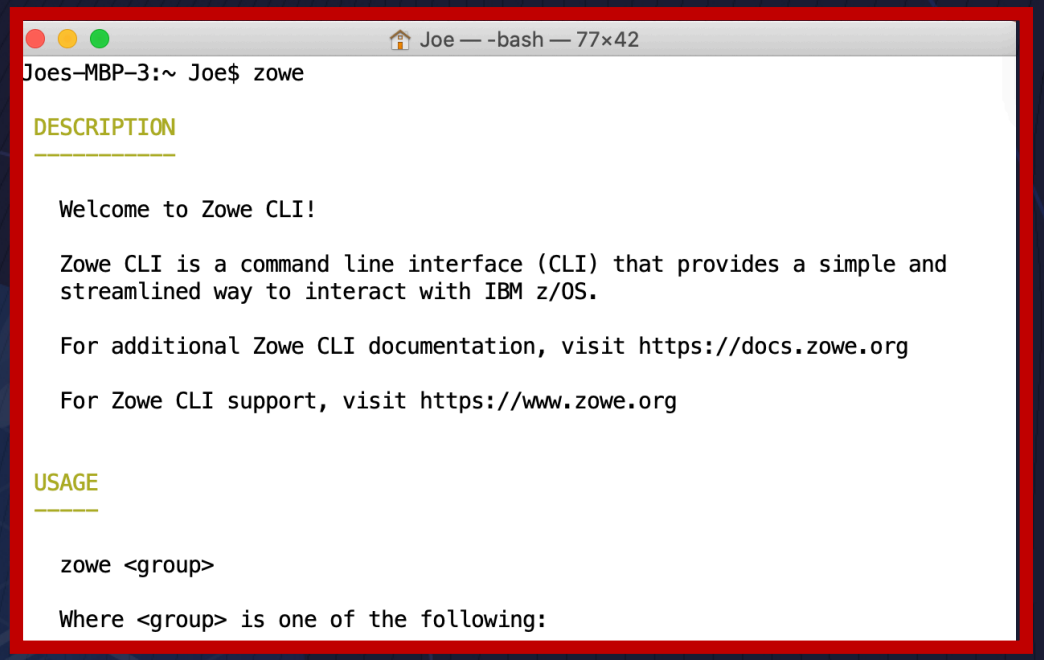
https://openmainframeproject.org

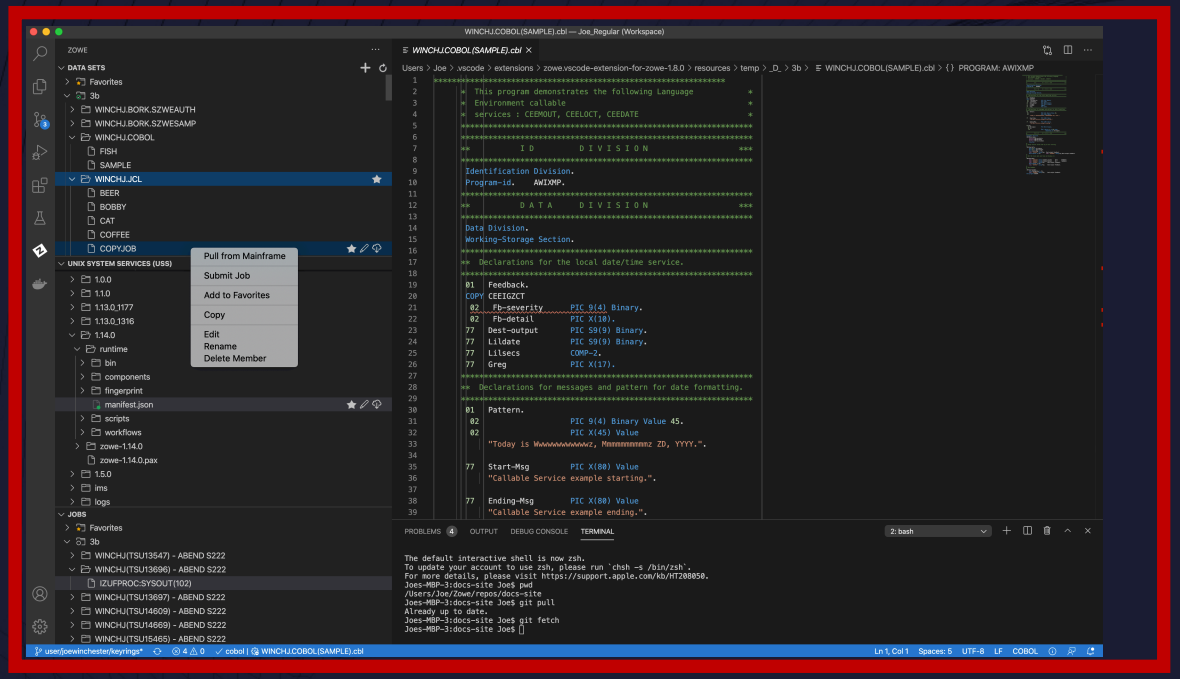


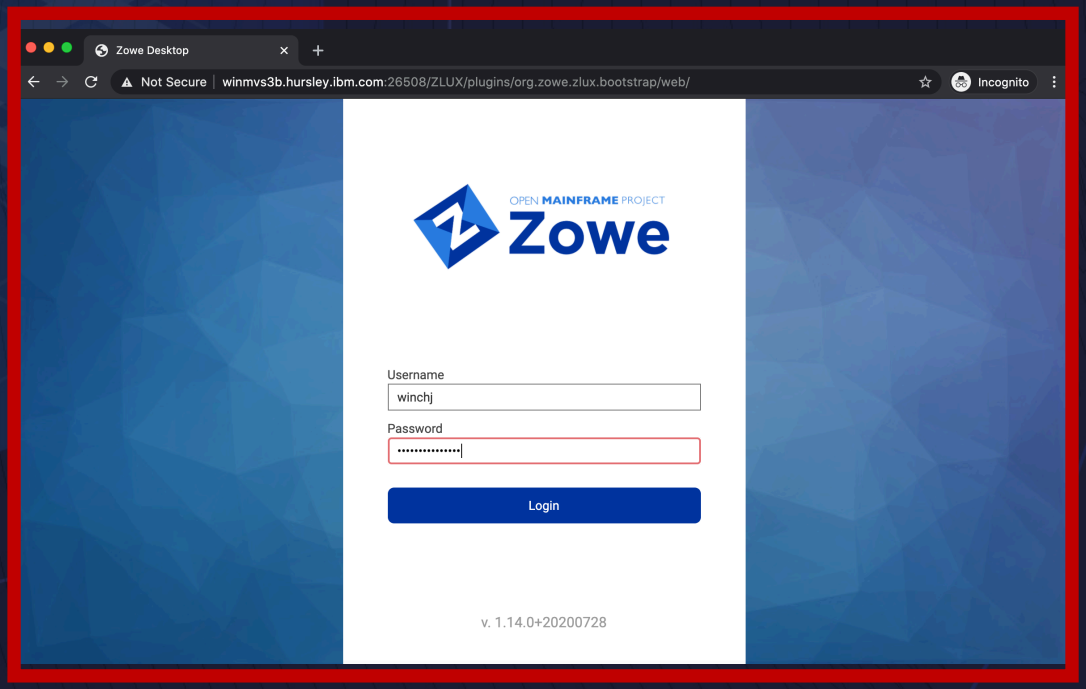
Open

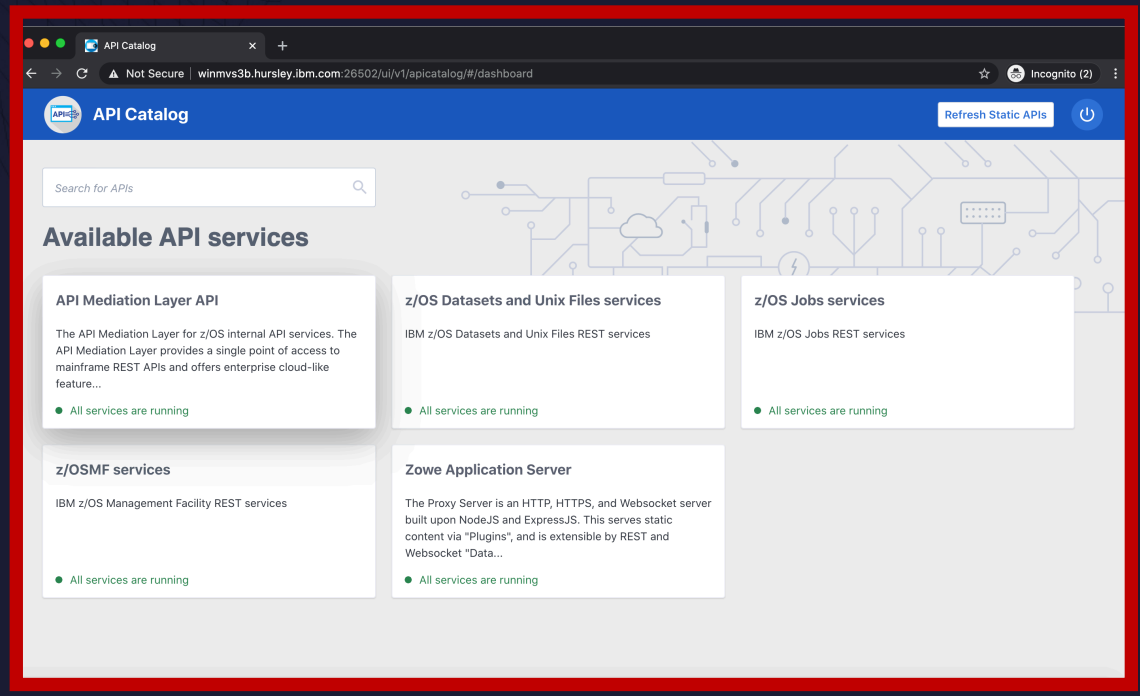
Simple

Familiar


Joe — -bash — 77×42
Joes-MBP-3:~ Joe$ zowe
DESCRIPTION
Welcome to Zowe CLI!
Zowe CLI is a command line interface (CLI) that provides a simple and streamlined way to interact with IBM z/OS.
For additional Zowe CLI documentation, visit https://docs.zowe.org
For Zowe CLI support, visit https://www.zowe.org
USAGE
zowe <group>
Where <group> is one of the following:


Pull from Mainframe
Submit Job
Add to Favorites
Copy
Edit
Rename
Delete Member


Zowe Desktop
Not Secure winmvs3b.hursley.ibm.com:26508/ZLUX/plugins/org.zowe.zlux.bootstrap/web/
Incognito
OPEN MAINFRAME PROJECT
Zowe
Username
winchj
Password
Login
v. 1.14.0+20200728


API Catalog
Not Secure winmvs3b.hursley.ibm.com:26502/ui/v1/apicatalog/#/dashboard
Incognito (2)
API Catalog
Refresh Static APIs
Search for APIs
Available API services
API Mediation Layer API
The API Mediation Layer for z/OS internal API services. The API Mediation Layer provides a single point of access to mainframe REST APIs and offers enterprise cloud-like feature...
All services are running
z/OS Datasets and Unix Files services
IBM z/OS Datasets and Unix Files REST services
All services are running
z/OS Jobs services
IBM z/OS Jobs REST services
All services are running
z/OSMF services
IBM z/OS Management Facility REST services
All services are running
Zowe Application Server
The Proxy Server is an HTTP, HTTPS, and Websocket server built upon NodeJS and ExpressJS. This serves static content via "Plugins", and is extensible by REST and Websocket "Data...
All services are running

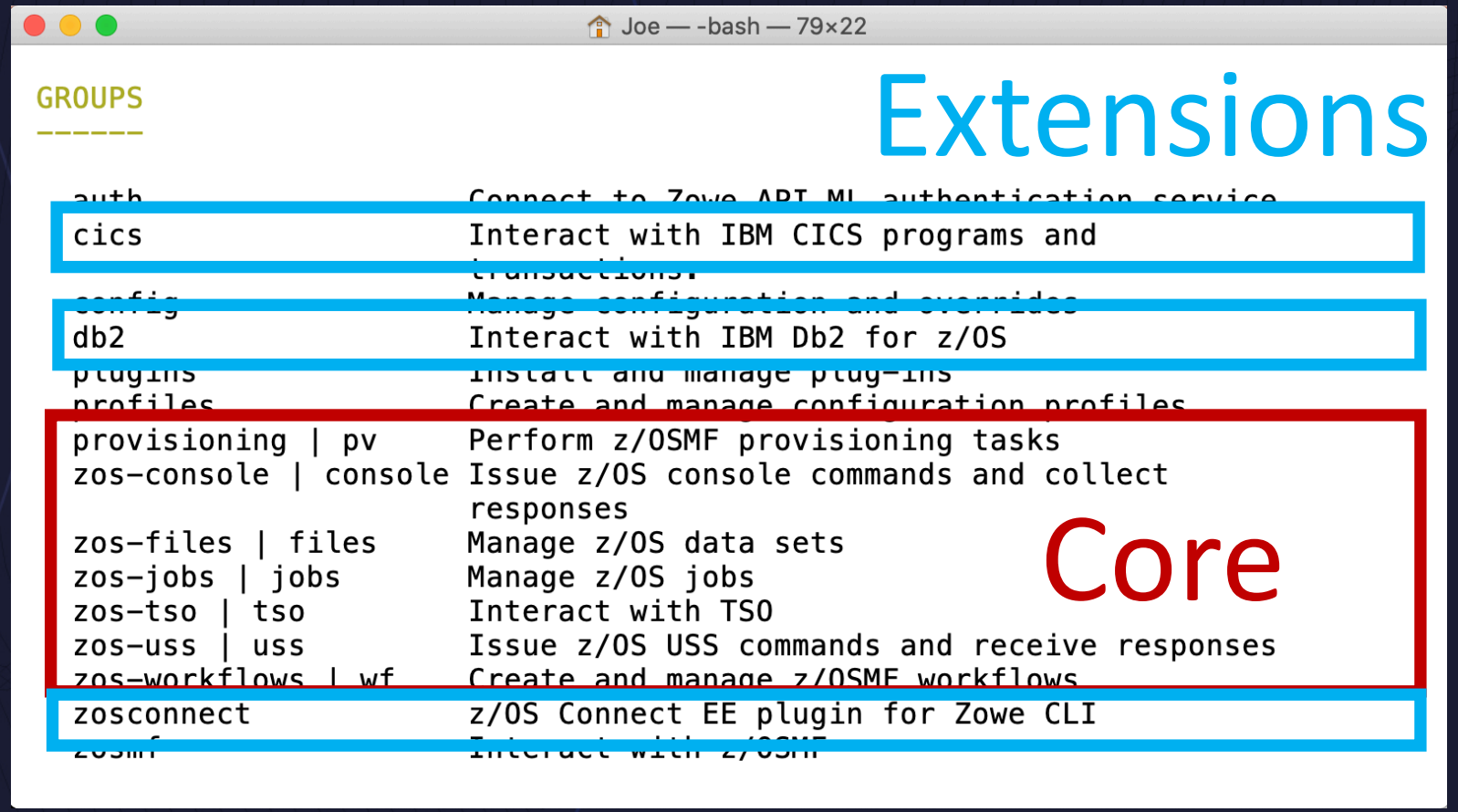
Drivers — -bash — 86×36

```
Joes-MBP-3:drivers Joe$ git
usage: git [--version] [--help] [-C <path>] [-c name=value]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           <command> [<args>]

These are common Git commands used in various situations:

start a working area (see also: git help tutorial)
   clone      Clone a repository into a new directory
   init       Create an empty Git repository or reinitialize an existing one

work on the current change (see also: git help everyday)
   add        Add file contents to the index
   mv         Move or rename a file, a directory, or a symlink
   reset      Reset current HEAD to the specified state
   rm         Remove files from the working tree and from the index

examine the history and state (see also: git help revisions)
   bisect     Use binary search to find the commit that introduced a bug
   grep       Print lines matching a pattern
   log        Show commit logs
   show       Show various types of objects
   status     Show the working tree status

grow, mark and tweak your common history
   branch     List, create, or delete branches
   checkout   Switch branches or restore working tree files
   commit     Record changes to the repository
   diff       Show changes between commits, commit and working tree, etc
   merge      Join two or more development histories together
   rebase     Reapply commits on top of another base tip
   tag        Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)
```

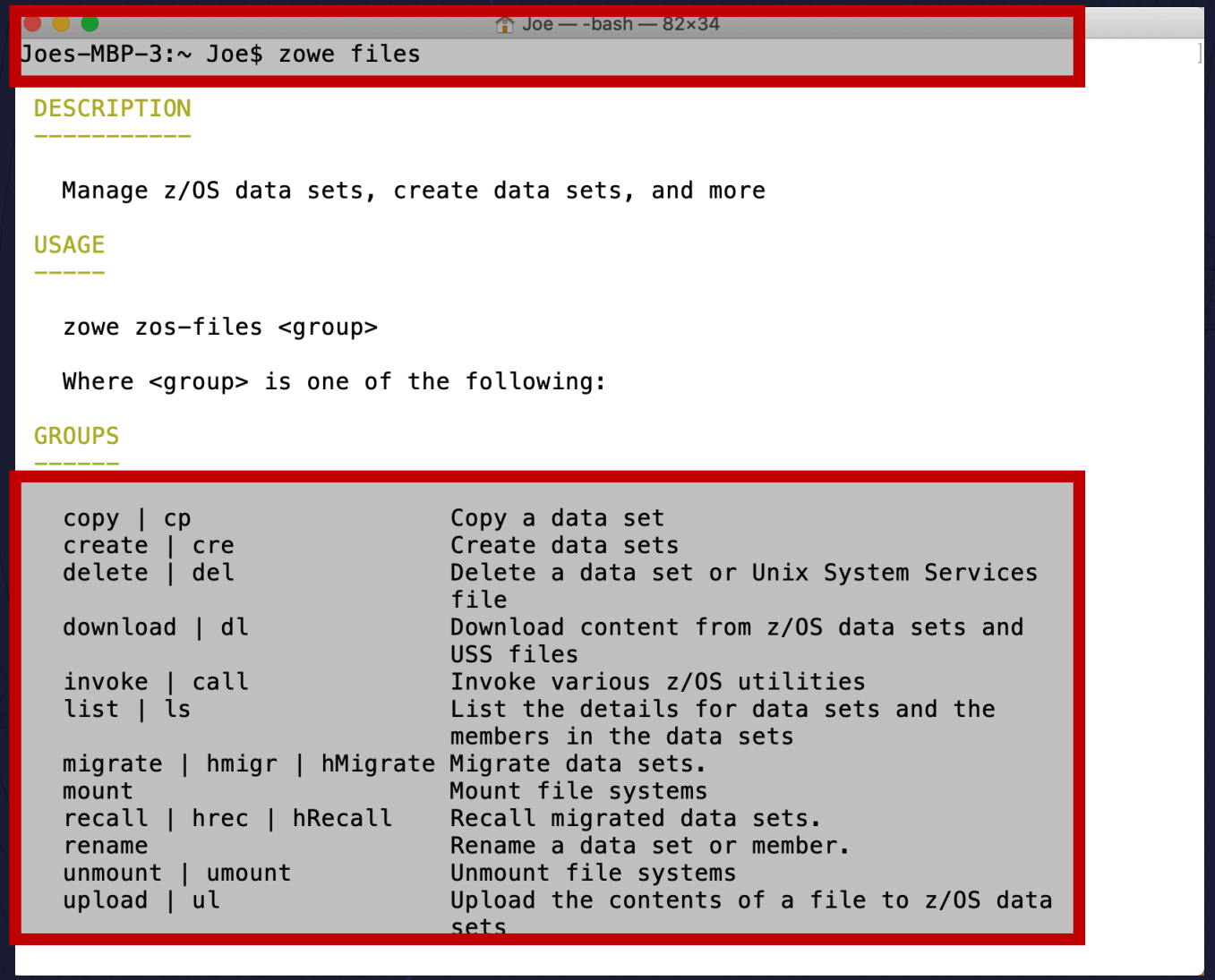
Drivers — -bash — 86×36

```
Joes-MBP-3:drivers Joe$ docker

Usage:  docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Options:
      --config string      Location of client config files (default
                           "/Users/Joe/.docker")
  -c, --context string     Name of the context to use to connect to the daemon
                           (overrides DOCKER_HOST env var and default context
                           set with "docker context use")
  -D, --debug              Enable debug mode
  -H, --host list          Daemon socket(s) to connect to
  -l, --log-level string   Set the logging level
                           ("debug"|"info"|"warn"|"error"|"fatal") (default "info")
      --tls                Use TLS; implied by --tlsverify
      --tlscacert string   Trust certs signed only by this CA (default
                           "/Users/Joe/.docker/ca.pem")
      --tlscert string     Path to TLS certificate file (default
                           "/Users/Joe/.docker/cert.pem")
      --tlskey string      Path to TLS key file (default
                           "/Users/Joe/.docker/key.pem")
      --tlsverify          Use TLS and verify the remote
  -v, --version            Print version information and quit

Management Commands:
  app*        Docker App (Docker Inc., v0.9.1-beta3)
  builder     Manage builds
  buildx*     Build with BuildKit (Docker Inc., v0.5.1-docker)
  config      Manage Docker configs
  container   Manage containers
  context     Manage contexts
  image       Manage images
  manifest    Manage Docker image manifests and manifest lists
  network     Manage networks
```

Command Line Interface (CLI)



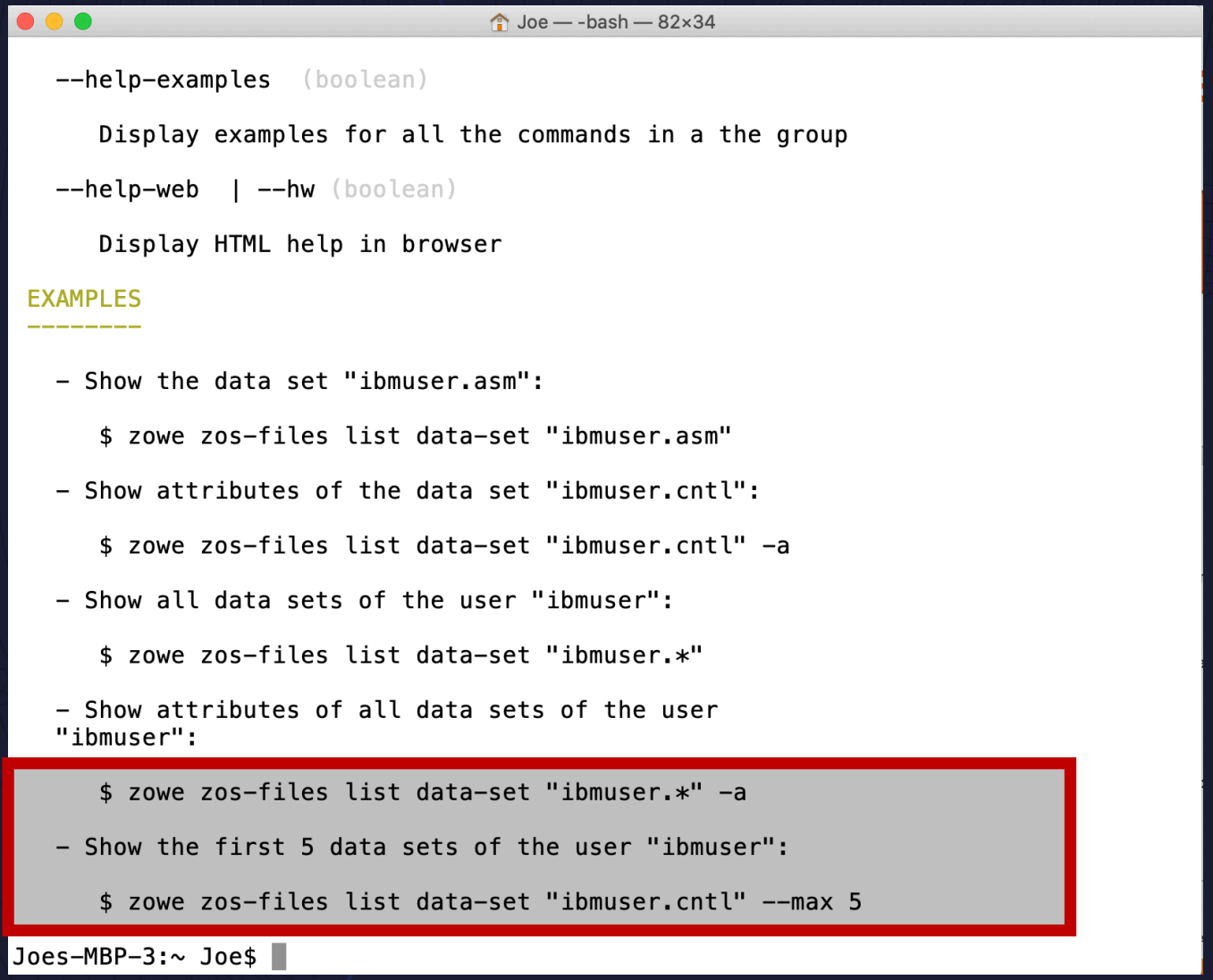
Progressive Discovery – >zowe files



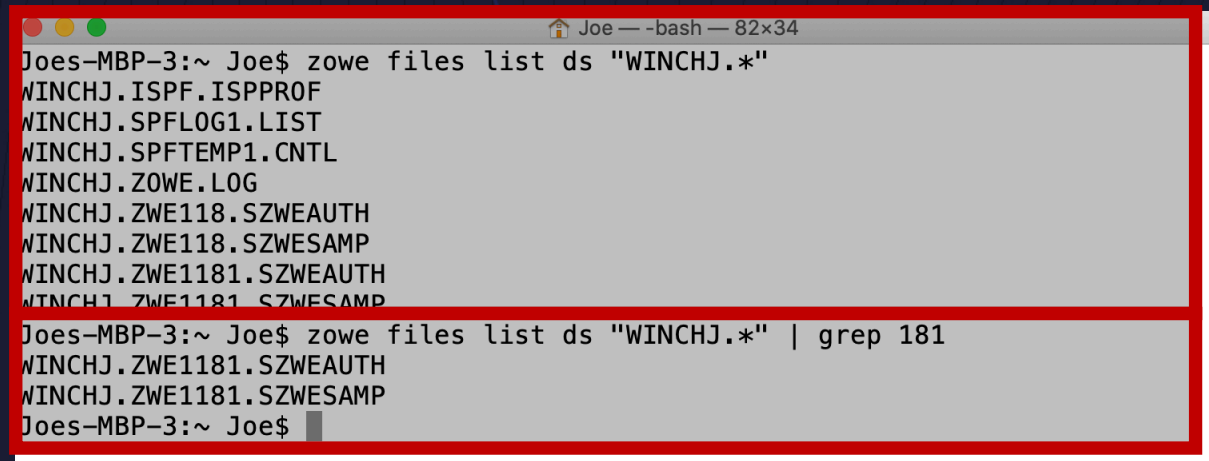
>zowe files list

```
Joes-MBP-3:~ Joe$ zowe files list

DESCRIPTION
-----------

  List data sets and data set members. Optionally, you can list their
  details and attributes.

USAGE
-----

  zowe zos-files list <command>

  Where <command> is one of the following:

COMMANDS
--------

  all-members | am List all members of a pds
  data-set | ds    List data sets
  file-system | fs Listing mounted z/OS filesystems
  uss-files | uss  List USS files

GLOBAL OPTIONS
--------------

  --response-format-json  | --rfj (boolean)

     Produce JSON formatted data from a command

  --help  | -h (boolean)

     Display help text
```

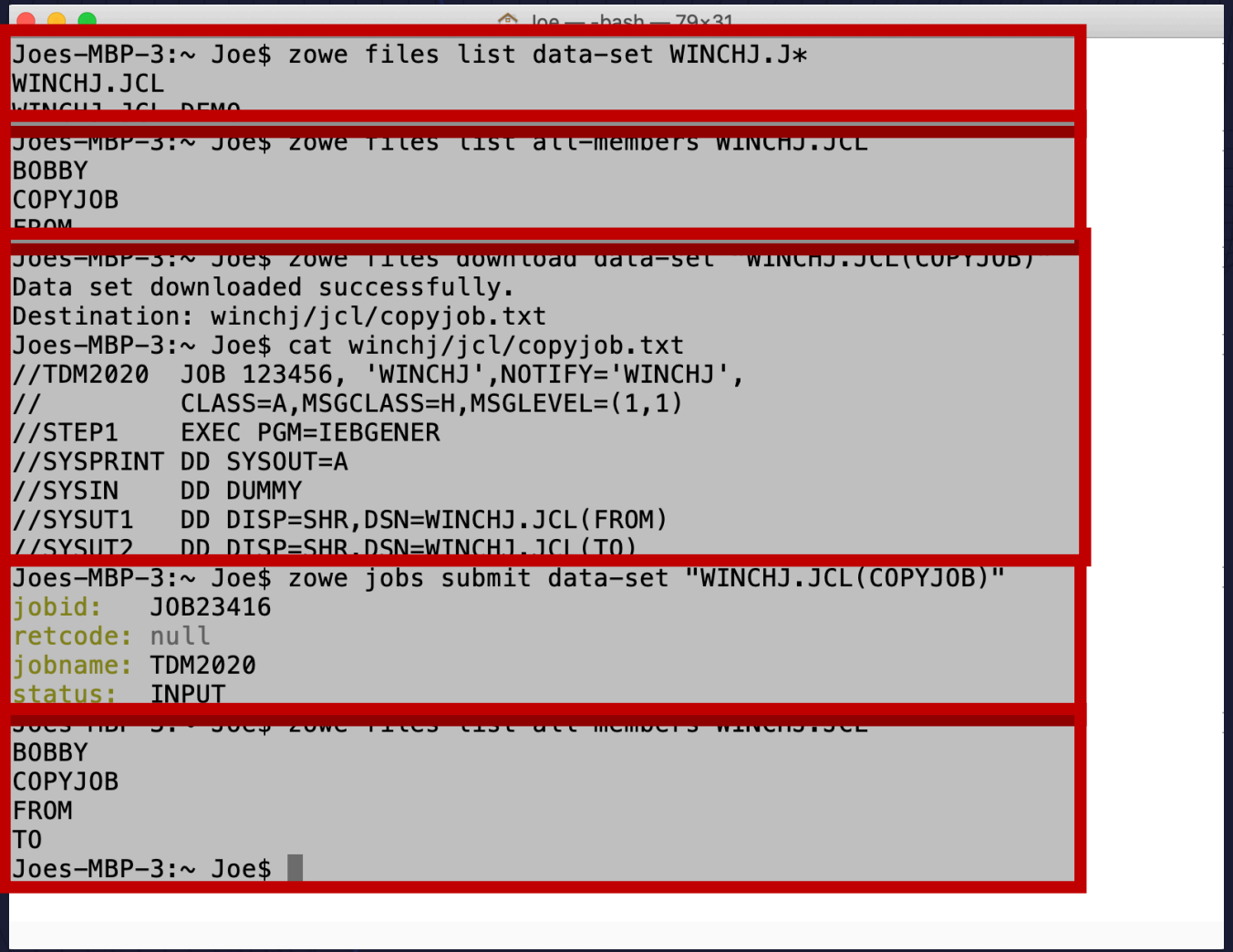
>zowe files list ds -help



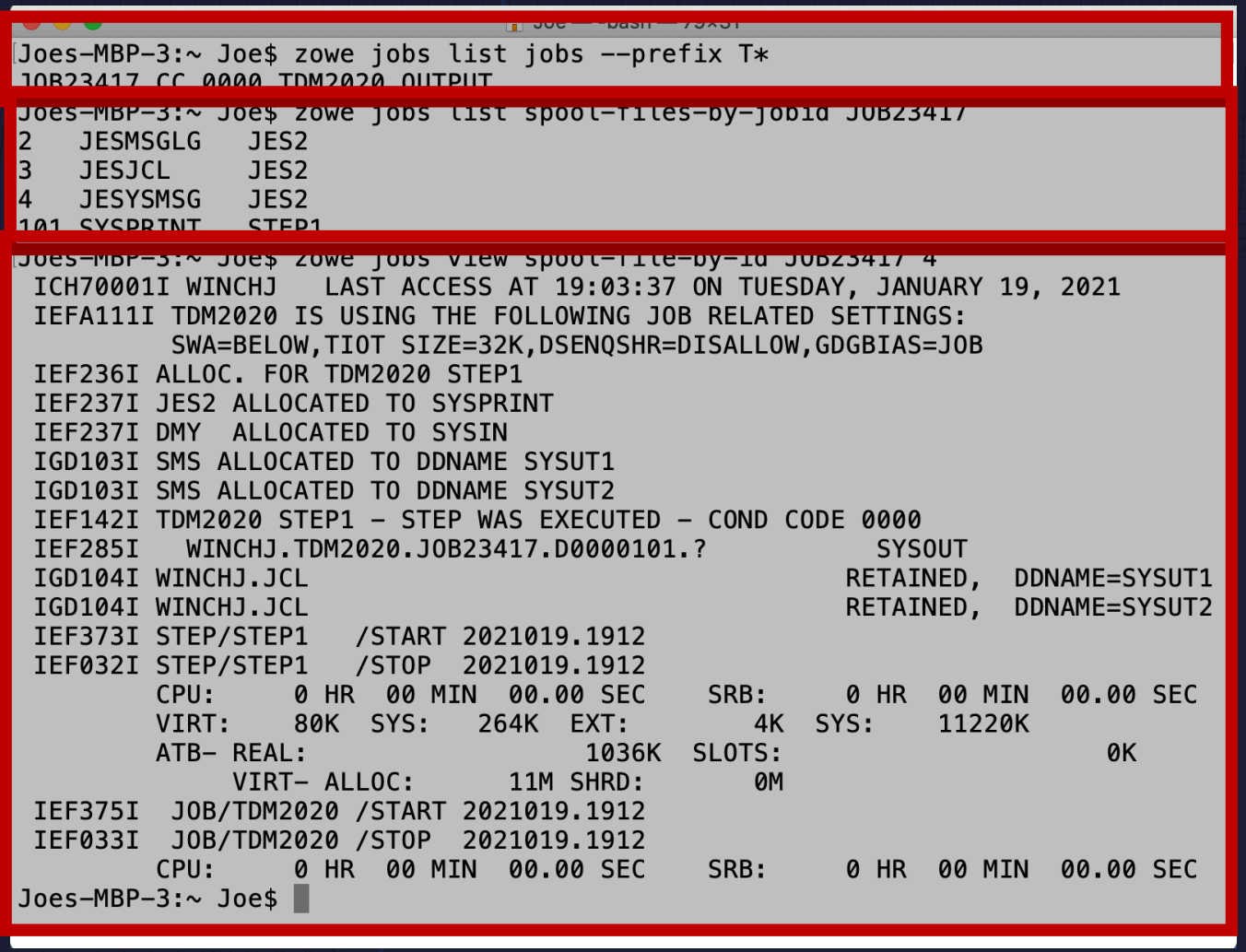
>zowe files list ds WINCHJ.*



Data Sets


Joes-MBP-3:~ Joe$ zowe files list data-set WINCHJ.J*
WINCHJ.JCL
Joes-MBP-3:~ Joe$ zowe files list all-members WINCHJ.JCL
BOBBY
COPYJOB
FROM
Joes-MBP-3:~ Joe$ zowe files download data-set "WINCHJ.JCL(COPYJOB)"
Data set downloaded successfully.
Destination: winchj/jcl/copyjob.txt
Joes-MBP-3:~ Joe$ cat winchj/jcl/copyjob.txt
//TDM2020 JOB 123456, 'WINCHJ',NOTIFY='WINCHJ',
//   CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1)
//STEP1   EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN   DD DUMMY
//SYSUT1   DD DISP=SHR,DSN=WINCHJ.JCL(FROM)
//SYSUT2   DD DISP=SHR,DSN=WINCHJ.JCL(TO)
Joes-MBP-3:~ Joe$ zowe jobs submit data-set "WINCHJ.JCL(COPYJOB)"
jobid: JOB23416
retcode: null
jobname: TDM2020
status: INPUT
Joes-MBP-3:~ Joe$ zowe files list all-members WINCHJ.JCL
BOBBY
COPYJOB
FROM
TO
Joes-MBP-3:~ Joe$

Jobs


Joes-MBP-3:~ Joe$ zowe jobs list jobs --prefix T*
JOB23417 CC 0000 TDM2020 OUTPUT
Joes-MBP-3:~ Joe$ zowe jobs list spool-files-by-jobid JOB23417
2 JESMSGLG JES2
3 JESJCL JES2
4 JESYSMSG JES2
101 SYSPRINT STEP1
Joes-MBP-3:~ Joe$ zowe jobs view spool-file-by-id JOB23417 4
ICH70001I WINCHJ LAST ACCESS AT 19:03:37 ON TUESDAY, JANUARY 19, 2021
IEFA111I TDM2020 IS USING THE FOLLOWING JOB RELATED SETTINGS:
SWA=BELOW,TIOT SIZE=32K,DSENQSHR=DISALLOW,GDGBIAS=JOB
IEF236I ALLOC. FOR TDM2020 STEP1
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I DMY ALLOCATED TO SYSIN
IGD103I SMS ALLOCATED TO DDNAME SYSUT1
IGD103I SMS ALLOCATED TO DDNAME SYSUT2
IEF142I TDM2020 STEP1 - STEP WAS EXECUTED - COND CODE 0000
IEF285I WINCHJ.TDM2020.JOB23417.D0000101.? SYSOUT
IGD104I WINCHJ.JCL RETAINED, DDNAME=SYSUT1
IGD104I WINCHJ.JCL RETAINED, DDNAME=SYSUT2
IEF373I STEP/STEP1 /START 2021019.1912
IEF032I STEP/STEP1 /STOP 2021019.1912
CPU: 0 HR 00 MIN 00.00 SEC SRB: 0 HR 00 MIN 00.00 SEC
VIRT: 80K SYS: 264K EXT: 4K SYS: 11220K
ATB- REAL: 1036K SLOTS: 0K
VIRT- ALLOC: 11M SHRD: 0M
IEF375I JOB/TDM2020 /START 2021019.1912
IEF033I JOB/TDM2020 /STOP 2021019.1912
CPU: 0 HR 00 MIN 00.00 SEC SRB: 0 HR 00 MIN 00.00 SEC
Joes-MBP-3:~ Joe$

Unix System Services (USS)

```
Joes-MBP-3:~ Joe$ zowe files create uss-directory /u/winchj/zowe/files
USS file or directory created successfully.
Joes-MBP-3:~ Joe$ touch new_file.txt
Joes-MBP-3:~ Joe$ zowe files upload file-to-uss new_file.txt /u/winchj/z
owe/files/from_pc.txt
success: true
from:    new_file.txt
to:      /u/winchj/zowe/files/from_pc.txt


USS file uploaded successfully.
Joes-MBP-3:~ Joe$ zowe files list uss /u/winchj/zowe/files
.           drwxr-xr-x 8192 225 WINCHJ
..          drwxrwxrwx 8192 225 WINCHJ
from_pc.txt -rw-r--r--      225 WINCHJ
Joes-MBP-3:~ Joe$ zowe uss issue ssh "chmod a+x *" --cwd /u/winchj/zowe/
files

@@START OF COMMAND@@
$ cd /u/winchj/zowe/files && chmod a+x *

Joes-MBP-3:~ Joe$ zowe files list uss /u/winchj/zowe/files
.           drwxr-xr-x 8192 225 WINCHJ
..          drwxrwxrwx 8192 225 WINCHJ
from_pc.txt -rwxr-xr-x      225 WINCHJ
Joes-MBP-3:~ Joe$
```

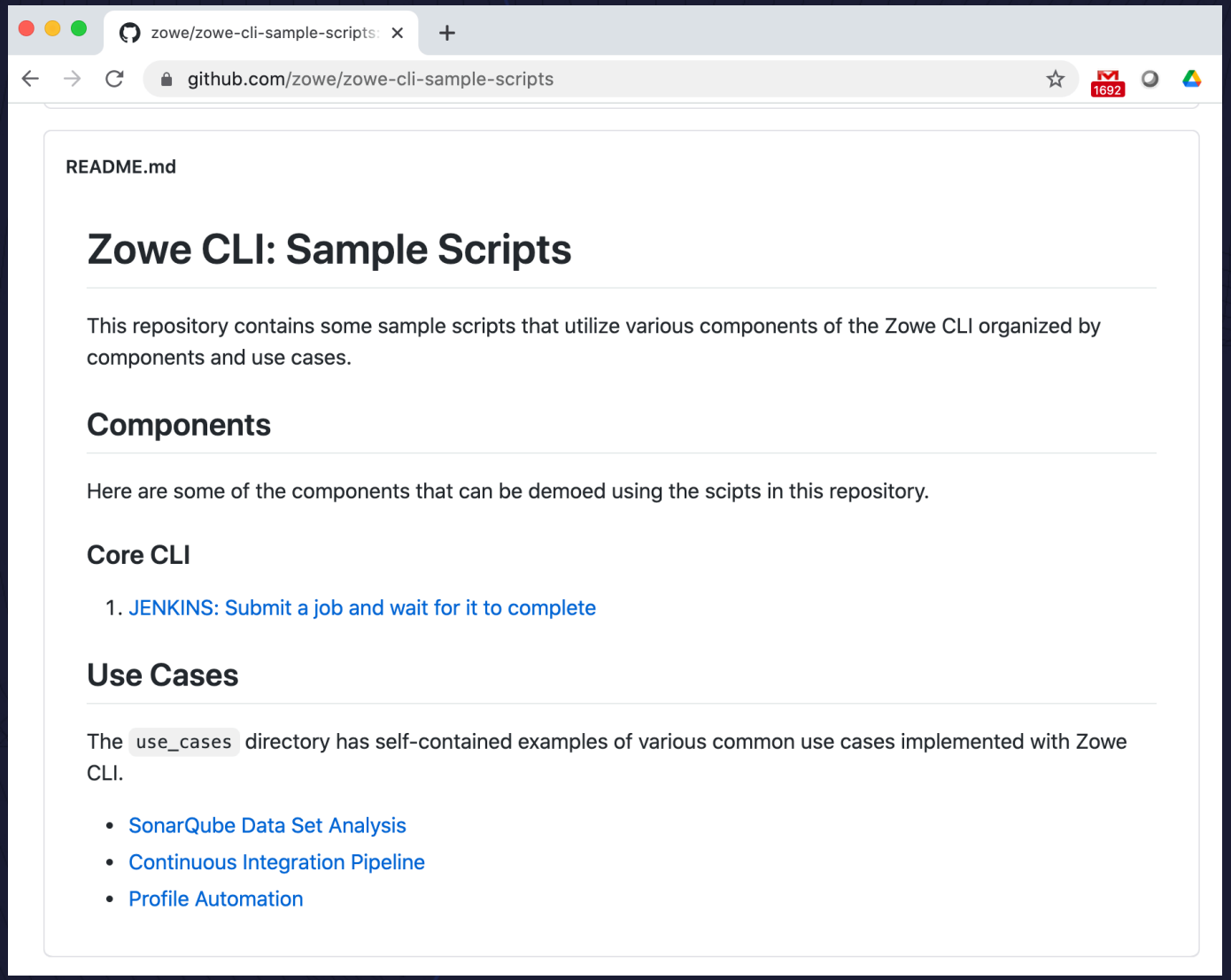
```
DEMO_PDS="STEVENH.DEMO.JCL"
ZOSMF_PROFILE=3bsh
```

```
MATCHES=`zowe zos-files list data-set "$DEMO_PDS" --zosmf-p $ZOSMF_PROFILE --response-format-json | jq -r '.data.apiResponse.returnedRows'
if [ $MATCHES -gt 0 ]; then
    echo "Data set $DEMO_PDS already exists, deleting"
    zowe zos-files delete data-set -f "$DEMO_PDS" --zosmf-p $ZOSMF_PROFILE
fi
```

```
zowe zos-files create data-set-classic $DEMO_PDS --zosmf-p $ZOSMF_PROFILE
zowe zos-files upload stdin-to-data-set "$DEMO_PDS(INPUT)" <<< $1 --zosmf-p $ZOSMF_PROFILE
zowe zos-files upload stdin-to-data-set --zosmf-p $ZOSMF_PROFILE "$DEMO_PDS(COPY)" <<EOF
//COPY JOB 123456, 'TSTRADM',NOTIFY='TSTRADM',
//         CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1)
//STEP1    EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN    DD DUMMY
//SYSUT1   DD DISP=SHR,DSN=$DEMO_PDS(INPUT)
//SYSUT2   DD DISP=SHR,DSN=$DEMO_PDS(OUTPUT)
//STEP2    EXEC PGM=AOPBATCH,PARM='sleep 5'
EOF
JOBID=`zowe jobs submit data-set "$DEMO_PDS(copy)" --zosmf-p $ZOSMF_PROFILE --response-format-json | jq -r '.data.jobid'`
echo "JOBID is $JOBID"
```

```
i="0"
while [ $i -lt 5 ]
do
    sleep 1s
    STATUS=`zowe jobs view job-status-by-jobid $JOBID --response-format-json --zosmf-p $ZOSMF_PROFILE | jq -r '.data.status'`
    if [ "$STATUS" = "OUTPUT" ]; then
        echo "Job $JOBID has now completed"
        i=5
    else
        echo "Waiting for job output to complete. Current status is $STATUS"
    fi
    i=$[$i+1]
done
```

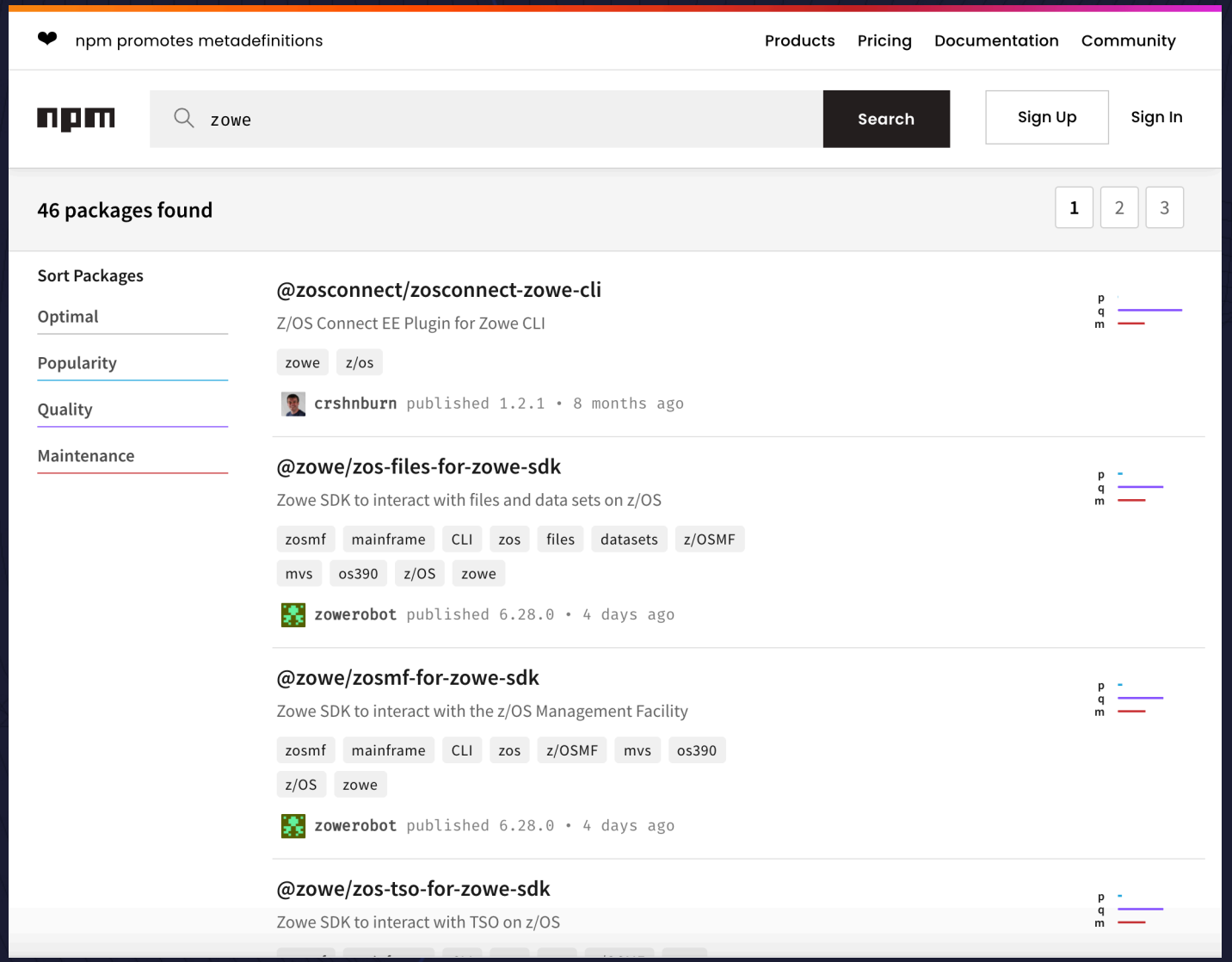
https://github.com/zowe/zowe-cli-sample-scripts



https://github.com/zowe/zowe-cli-sample-scripts/blob/master/Jenkins/Simple%20Pipeline/demo_content.sh

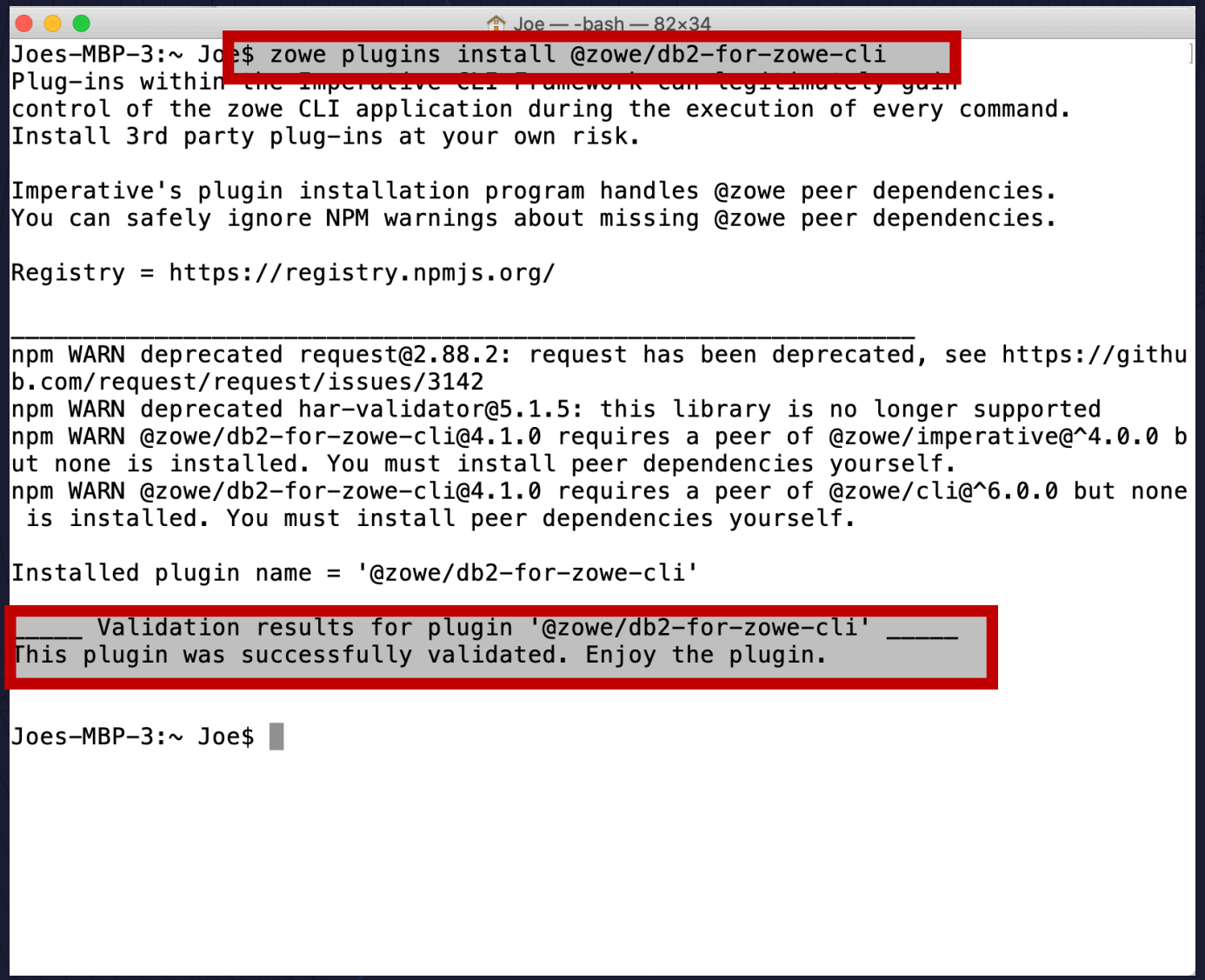
```
#                                                                              #
# SPDX-License-Identifier: EPL-2.0                                             #
#                                                                              #
# Copyright Contributors to the Zowe Project.                                  #
#


#test

#submit our job
jobid=$(zowe zos-jobs submit data-set "solsu01.mimpds.cntl(cblrun)" --rff jobid --rft string)

echo "Submitted our job, JOB ID is $jobid"

#wait for it to go to output
status="UNKNOWN"
while [ "$status" != "OUTPUT" ]; do
    echo "Checking status of job $jobid"
    status=$(zowe zos-jobs view job-status-by-jobid "$jobid" --rff status --rft string)
    echo "Current status is $status"
    sleep 5s
done;

echo "Job completed in OUTPUT status. Final result of job: "
zowe zos-jobs view job-status-by-jobid "$jobid"
zowe zos-jobs list spool-files-by-jobid "$jobid"

zowe zos-jobs view sfbi "$jobid" 2
zowe zos-jobs view sfbi "$jobid" 103
```

https://www.npmjs.com/search?q=zowe

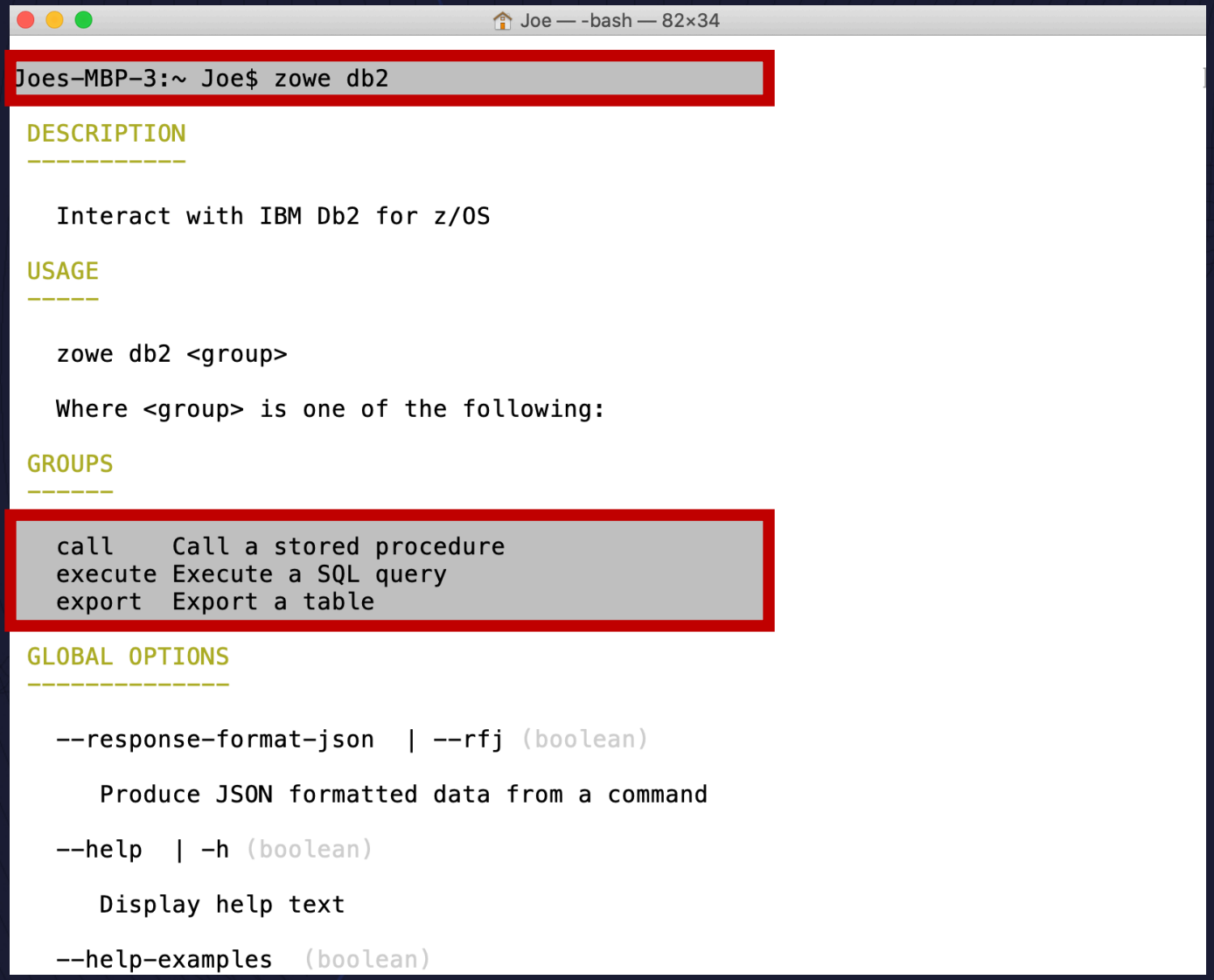


https://www.npmjs.com/search?q=zowe%20db2

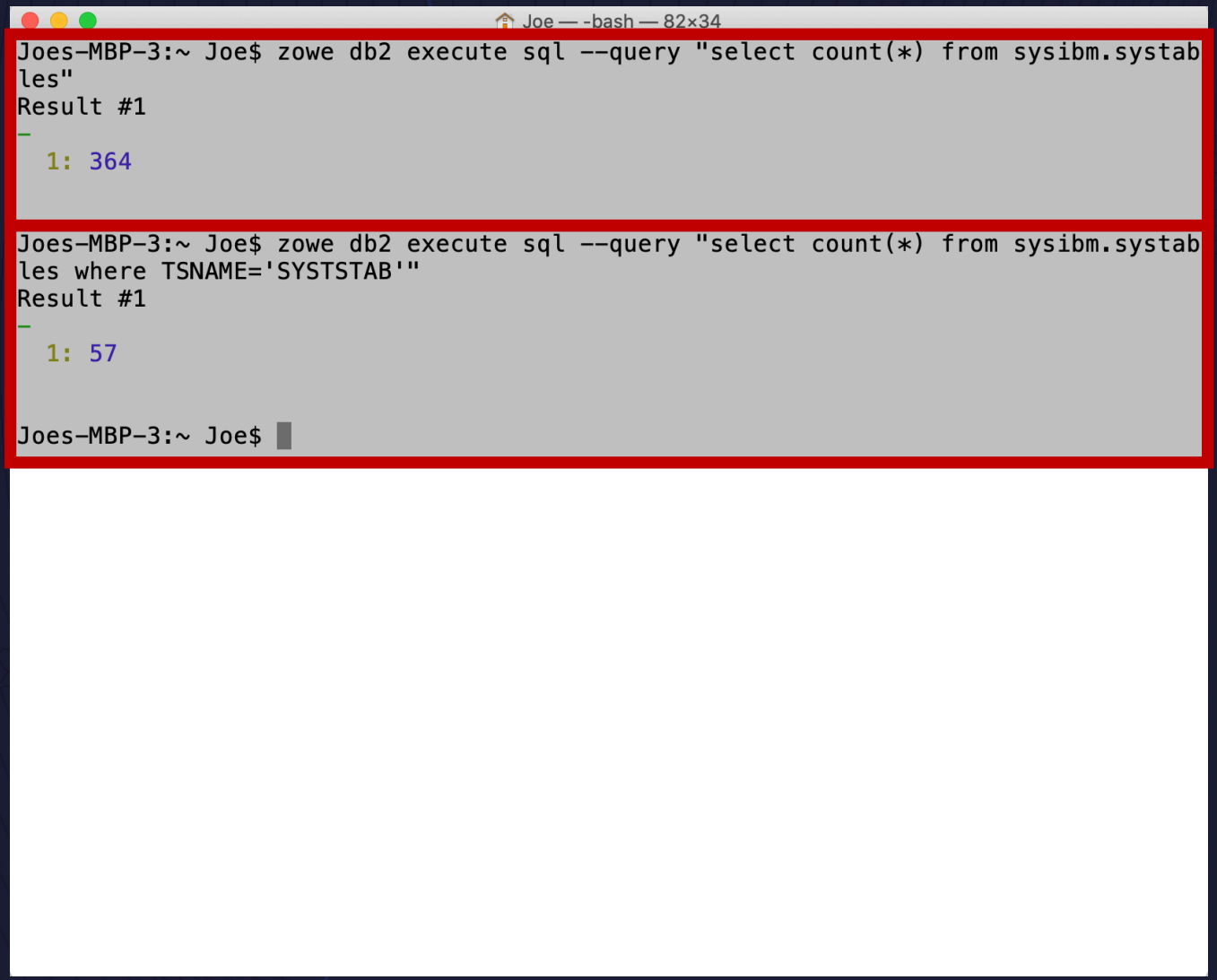
>zowe plugins install @zowe/db2-for-zowe-cli



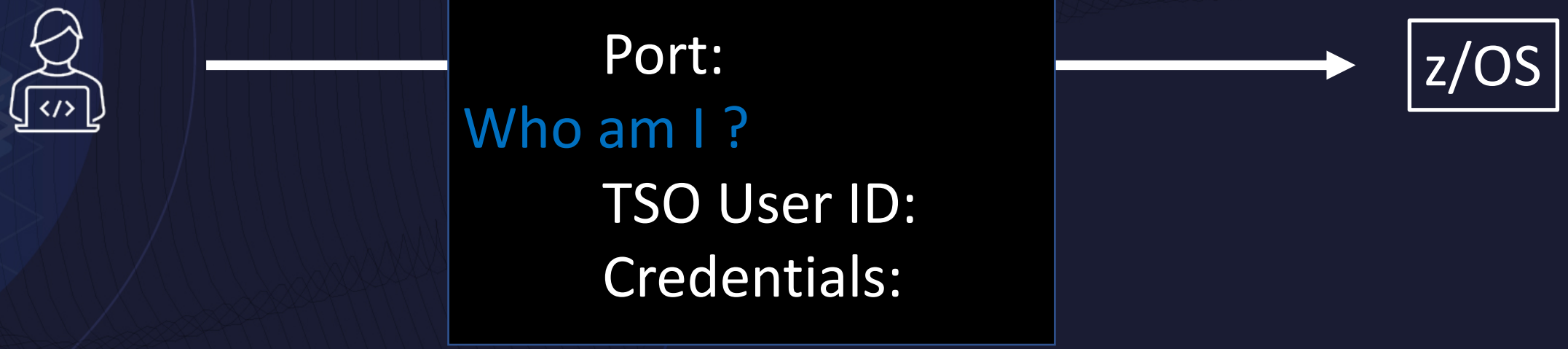
>zowe db2


Joe — -bash — 82×34
Joes-MBP-3:~ Joe$ zowe db2
DESCRIPTION
Interact with IBM Db2 for z/OS
USAGE
zowe db2 <group>
Where <group> is one of the following:
GROUPS
call Call a stored procedure
execute Execute a SQL query
export Export a table
GLOBAL OPTIONS
--response-format-json | --rfj (boolean)
Produce JSON formatted data from a command
--help | -h (boolean)
Display help text
--help-examples (boolean)

>zowe db2 execute sql --query



host connectivity endpoint location + authentication information



zowe profiles

Joe — -bash — 82×34

```
Joes-MBP-3:~ Joe$ zowe profiles

DESCRIPTION
-----------

  Create and manage configuration profiles

USAGE
-----

  zowe profiles <group>

  Where <group> is one of the following:

GROUPS
------

  create | cre      Create new configuration profiles
  delete | rm       Delete existing profiles
  list | ls         List existing profiles
  set-default | set Set which profiles are loaded by default
  update | upd      Update existing profiles

GLOBAL OPTIONS
--------------

  --response-format-json  | --rfj (boolean)

     Produce JSON formatted data from a command

  --help  | -h (boolean)

     Display help text
```

z/OS

zowe profiles create: list: --zosmf-profile

```
Joe — -bash — 82×34
Joes-MBP-3:~ Joe$ zowe profiles create zosmf-profile yoda --host tvt5003.svl.ibm.c
om --port 443 --user WINCHJ --password ******
Profile created successfully! Path:
/Users/Joe/.zowe/profiles/zosmf/yoda.yaml

host:               tvt5003.svl.ibm.com
port:               443
user:               WINCHJ
password:           ******
rejectUnauthorized: true

Review the created profile and edit if necessary using the profile update command.
Joes-MBP-3:~ Joe$ zowe profiles list zosmf
2e
3b
svl (default)
svlapi
ukzowe4
yoda
Joes-MBP-3:~ Joe$ zowe files list ds WINCHJ.J* --zosmf-profile yoda
Joes-MBP-3:~ Joe$ zowe files list ds WINCHJ.*  --zosmf-profile yoda
WINCHJ.ISPF.ISPPROF
WINCHJ.SPFLOG1.LIST
WINCHJ.SPFTEMP1.CNTL
WINCHJ.ZOWE.LOG
WINCHJ.ZWE118.SZWEAUTH
WINCHJ.ZWE118.SZWESAMP
WINCHJ.ZWE1181.SZWEAUTH
WINCHJ.ZWE1181.SZWESAMP
Joes-MBP-3:~ Joe$
```

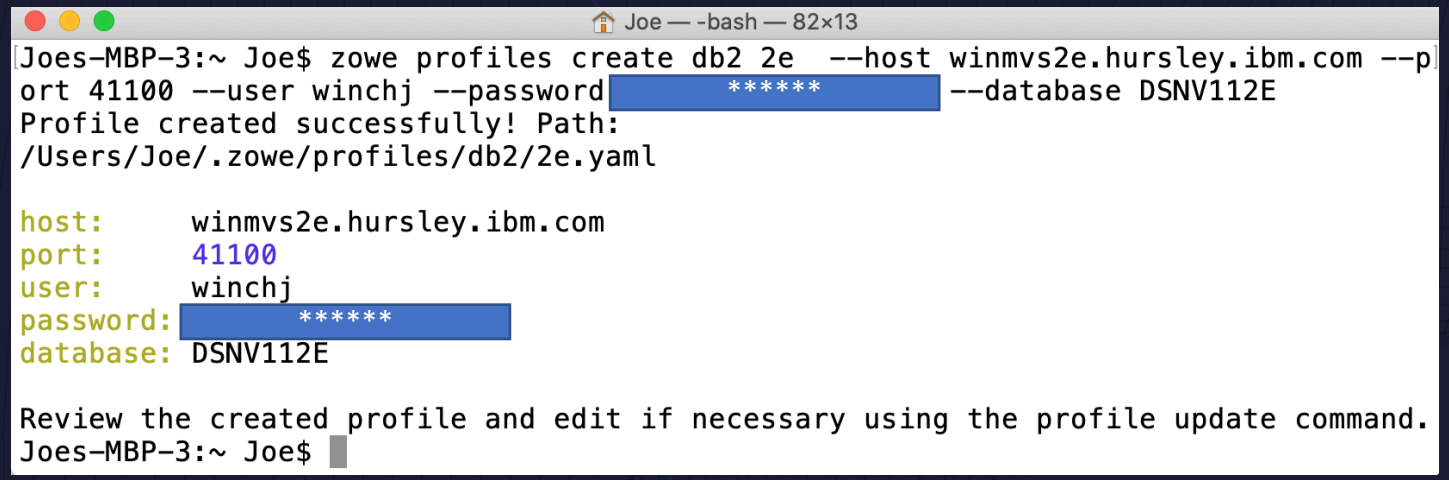
z/OS

zowe profiles db2 create – look in *MSTR JES for details

```
DSNL004I #DI2E DDF START COMPLETE 025
         LOCATION DSNV102E
         LU GBIBMIYA.IYCYZDBE
         GENERICLU –NONE
         DOMAIN  winmvs2e.hursley.ibm.com
         TCPPORT 41100
         SECPORT 30100
```

z/OS

zowe profiles db2 create name host port user password database



Usage

zowe profiles create db2-profile <profileName> [options]

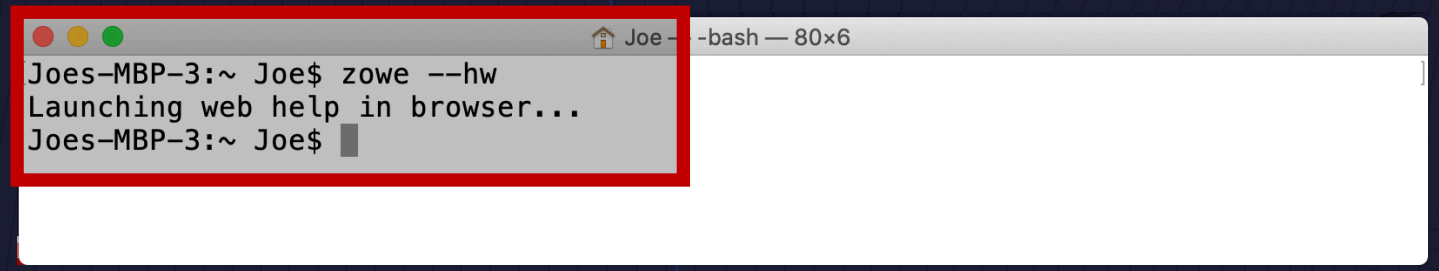
Positional Arguments

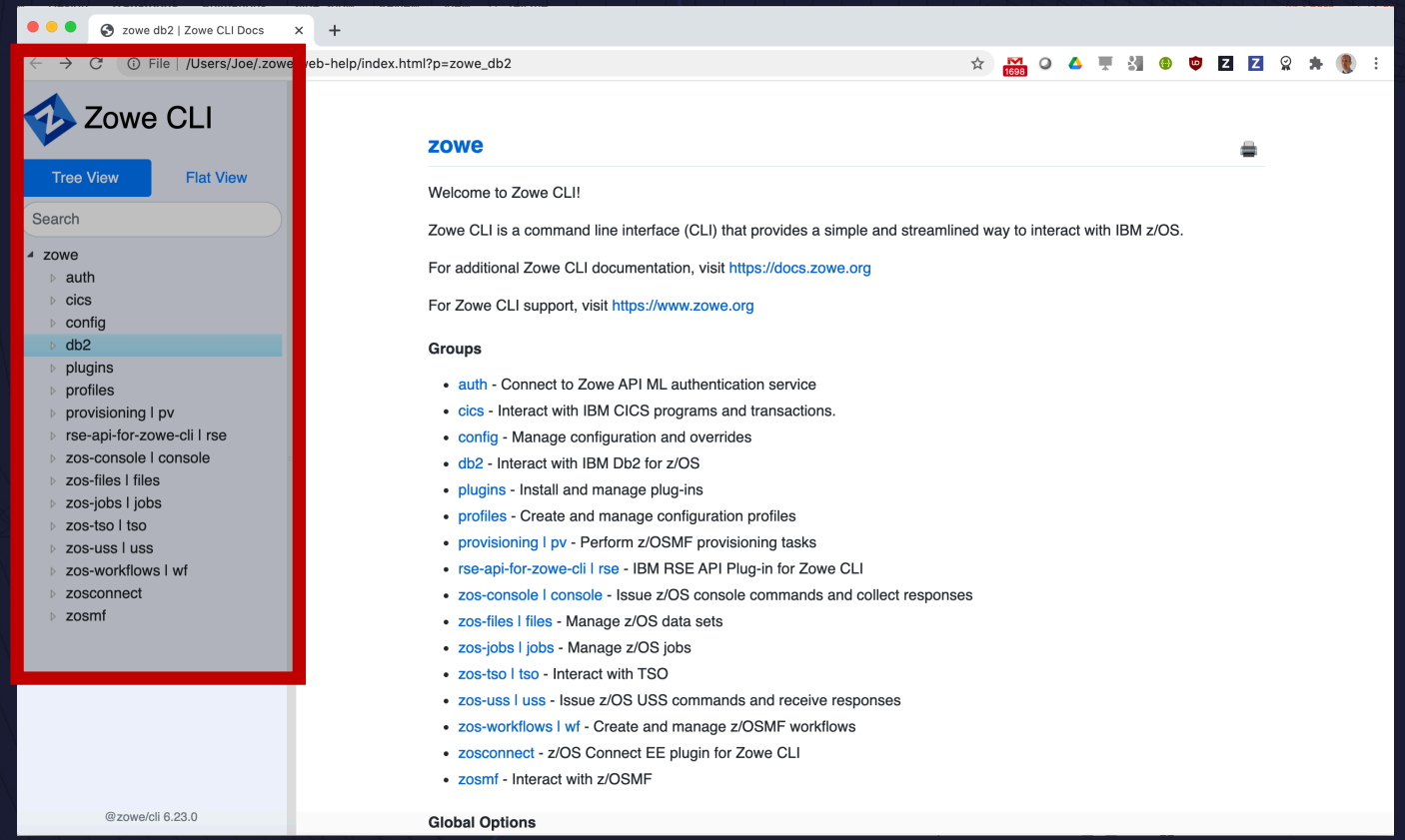
profileName *(string)*	Specifies the name of the new db2 profile.

Options

--host | -H *(string)*	The Db2 server host name
--port | -P *(number)*	The Db2 server port number
--user | -u *(string)*	The Db2 user ID (may be the same as the TSO login)
--password | --pass | --pw *(string)*	The Db2 password (may be the same as the TSO password)
--database | -d *(string)*	The name of the database

zowe --hw

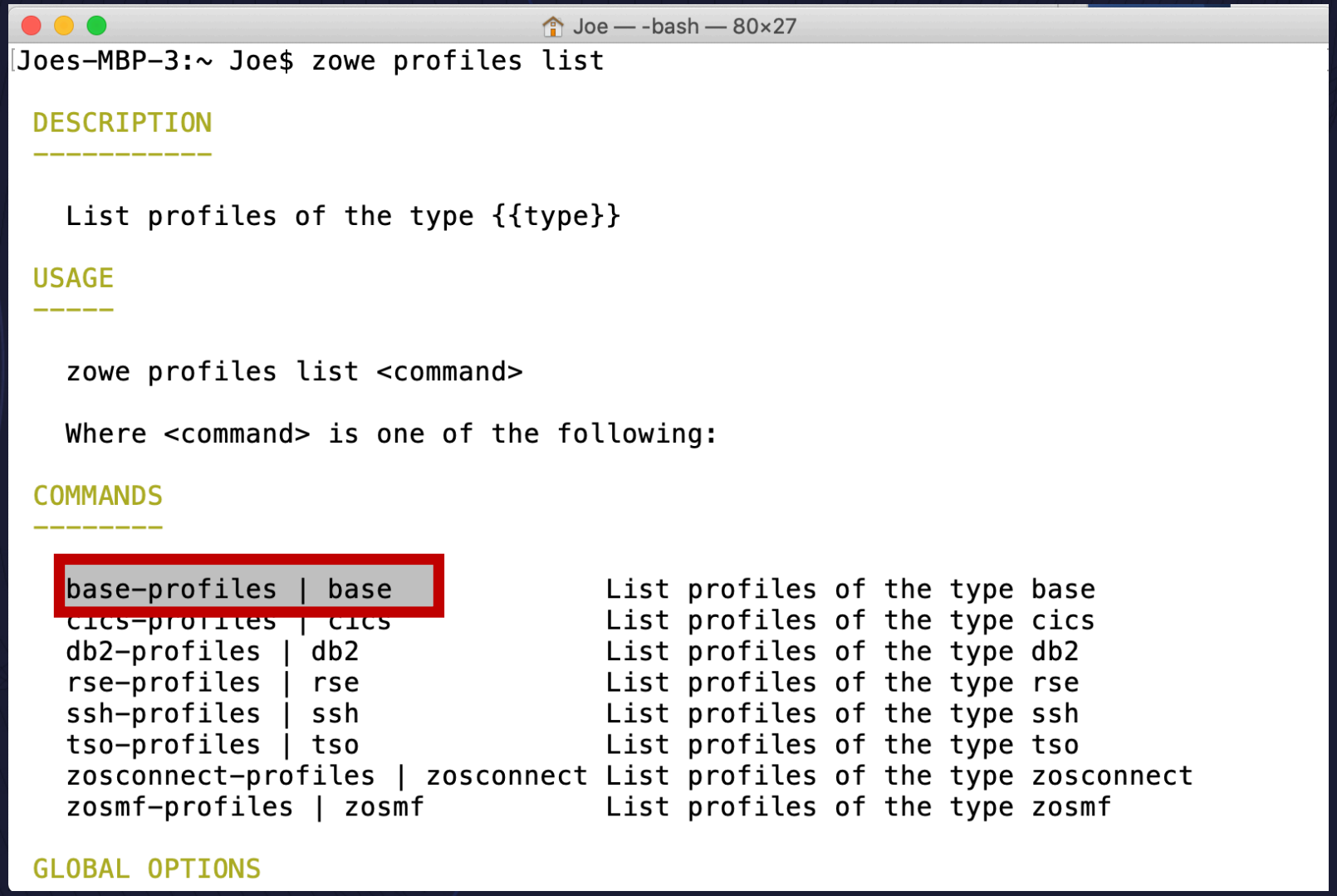

Joe — -bash — 80×6
Joes-MBP-3:~ Joe$ zowe --hw
Launching web help in browser...
Joes-MBP-3:~ Joe$


zowe db2 | Zowe CLI Docs
File | /Users/Joe/.zowe/web-help/index.html?p=zowe_db2
Zowe CLI
Tree View
Flat View
Search
zowe
auth
cics
config
db2
plugins
profiles
provisioning | pv
rse-api-for-zowe-cli | rse
zos-console | console
zos-files | files
zos-jobs | jobs
zos-tso | tso
zos-uss | uss
zos-workflows | wf
zosconnect
zosmf
@zowe/cli 6.23.0
zowe
Welcome to Zowe CLI!
Zowe CLI is a command line interface (CLI) that provides a simple and streamlined way to interact with IBM z/OS.
For additional Zowe CLI documentation, visit https://docs.zowe.org
For Zowe CLI support, visit https://www.zowe.org
Groups
auth - Connect to Zowe API ML authentication service
cics - Interact with IBM CICS programs and transactions.
config - Manage configuration and overrides
db2 - Interact with IBM Db2 for z/OS
plugins - Install and manage plug-ins
profiles - Create and manage configuration profiles
provisioning | pv - Perform z/OSMF provisioning tasks
rse-api-for-zowe-cli | rse - IBM RSE API Plug-in for Zowe CLI
zos-console | console - Issue z/OS console commands and collect responses
zos-files | files - Manage z/OS data sets
zos-jobs | jobs - Manage z/OS jobs
zos-tso | tso - Interact with TSO
zos-uss | uss - Issue z/OS USS commands and receive responses
zos-workflows | wf - Create and manage z/OSMF workflows
zosconnect - z/OS Connect EE plugin for Zowe CLI
zosmf - Interact with z/OSMF
Global Options

https://www.openmainframeproject.org/projects/zowe/conformance

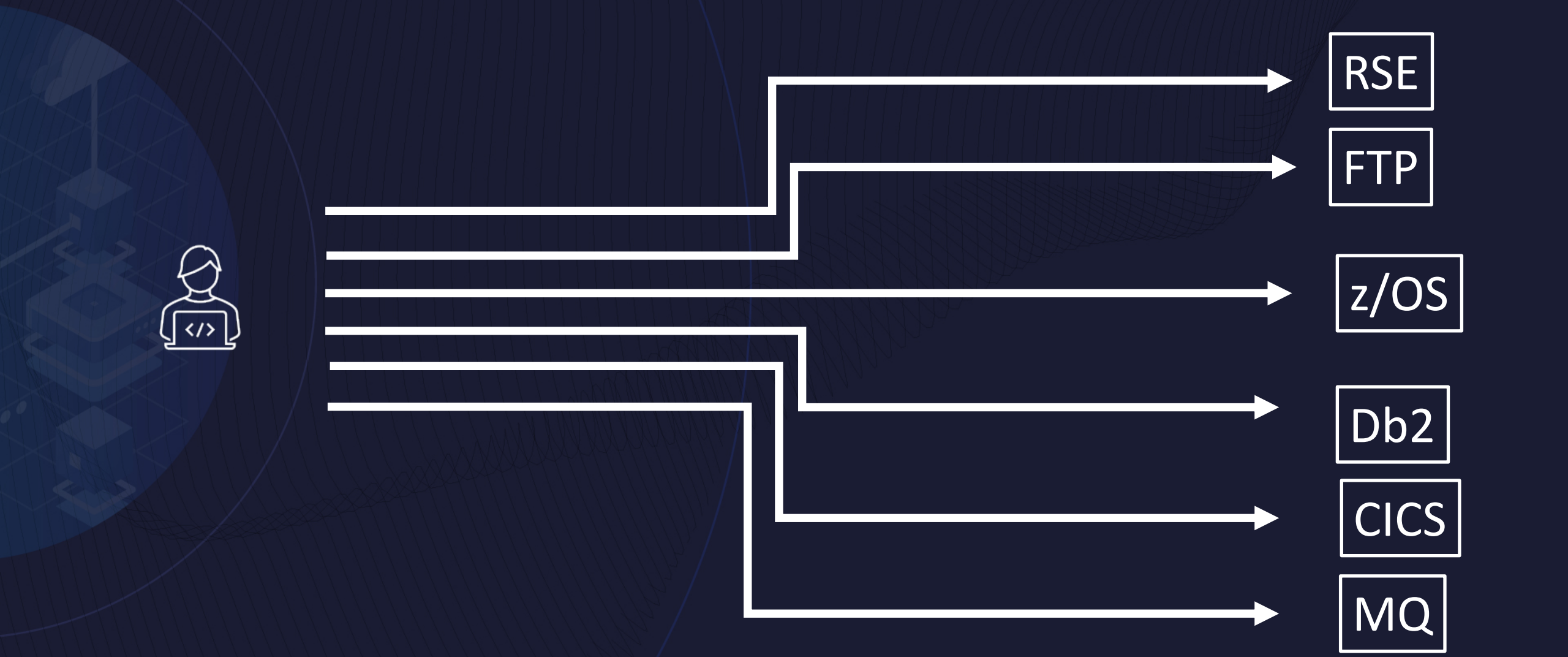
PHOENIX Software International (E)JES Phoenix Software International	BROADCOM CA Endevor® Broadcom	BROADCOM CA Endevor® Bridge For Git Broadcom	BROADCOM CA File Master™ Plus Broadcom	BROADCOM CA IDMS Broadcom	BROADCOM CA JCLCheck™ Workload Automation Broadcom
BROADCOM CA MAT Analyze Broadcom	BROADCOM CA MAT Detect Broadcom	BROADCOM CA OPS/MVS® Broadcom	BROADCOM CA Spool™ Broadcom	BROADCOM CA SYSVIEW® Performance Management Broadcom	BROADCOM CA View® Broadcom
BROADCOM CA Workload Automation CA 7® Broadcom	BROADCOM CA z/OS Extended Files Broadcom	BROADCOM CA z/OS Extended Jobs Broadcom	IBM Remote System Explorer API IBM	Zowe IBM® CICS® Plug-in for Zowe CLI Open Mainframe Project	Zowe IBM® Db2® Database Plug-in for Zowe CLI Open Mainframe Project
Zowe IBM® IMS™ Plug-in for Zowe CLI Open Mainframe Project	Zowe IBM MQ for z/OS Plug-in for Zowe CLI Open Mainframe Project	IBM® Z Workload Scheduler IBM	z/OS Connect EE IBM	Zowe z/OS FTP Plug-in for Zowe CLI Open Mainframe Project	Zowe CLI CICS Deploy IBM
Zowe Secure Credential Store Plug-in					

Introducing base profiles



Multiple profiles

Multiple profiles



Base Profiles

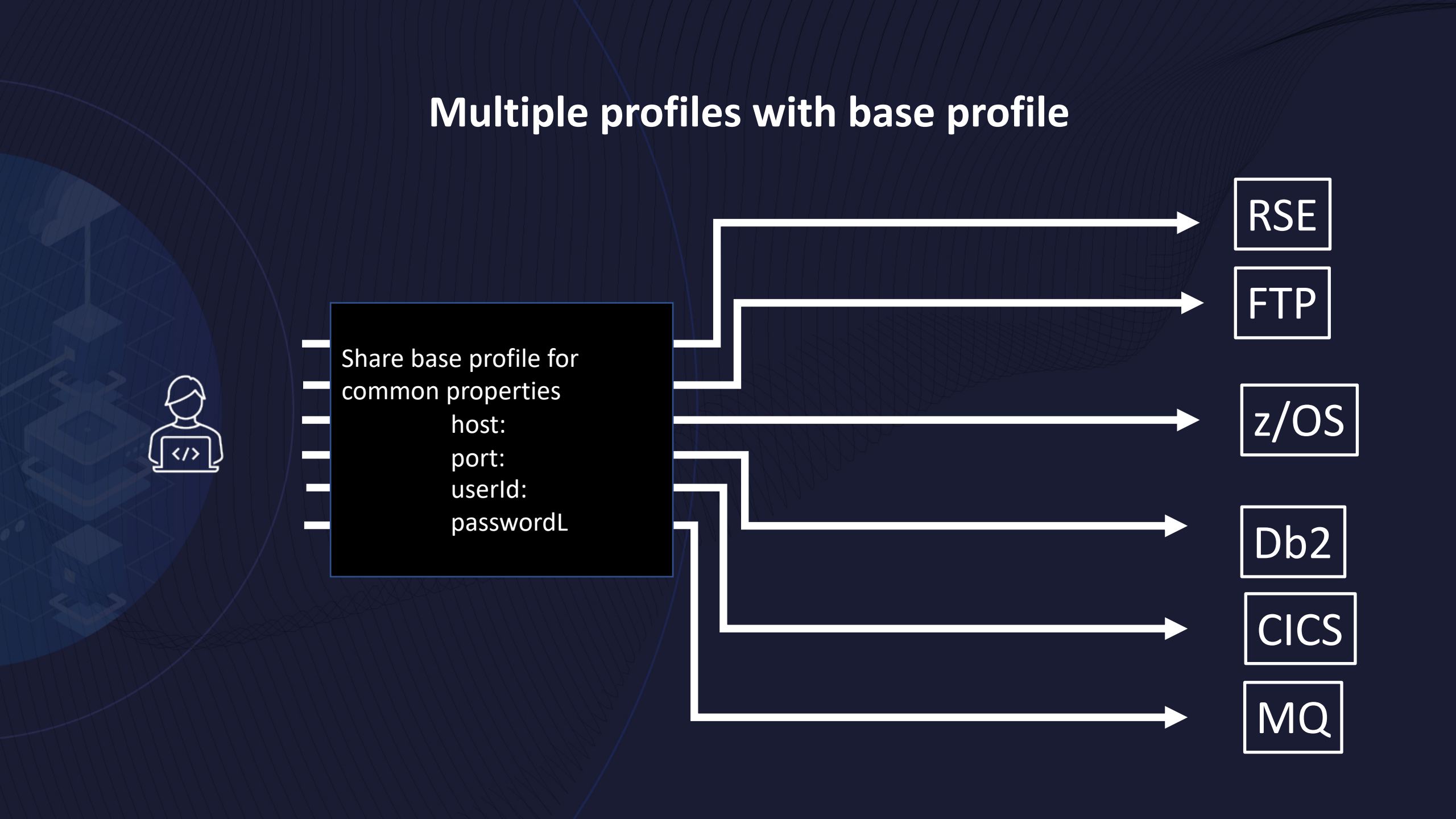
Base profile parent

```
name: default
host: tvt5003.svl.ibm.com
port: 26502
rejectUnauthorized: false
userId: winchj
Password: **********
```

Individual Profile Inherits where not overridden

```
Name: myDb2
baseProfile: default
databaseName: DSNV112E
```

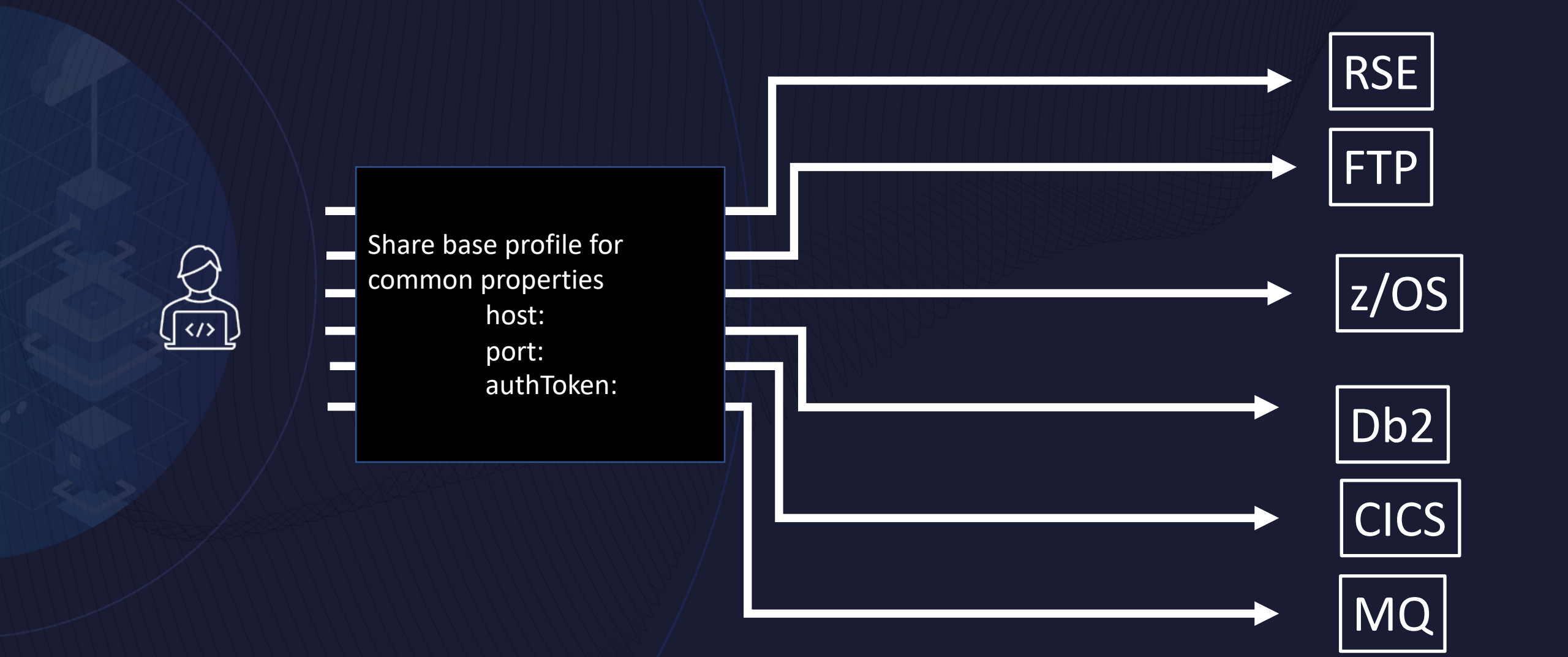
Multiple profiles with base profile



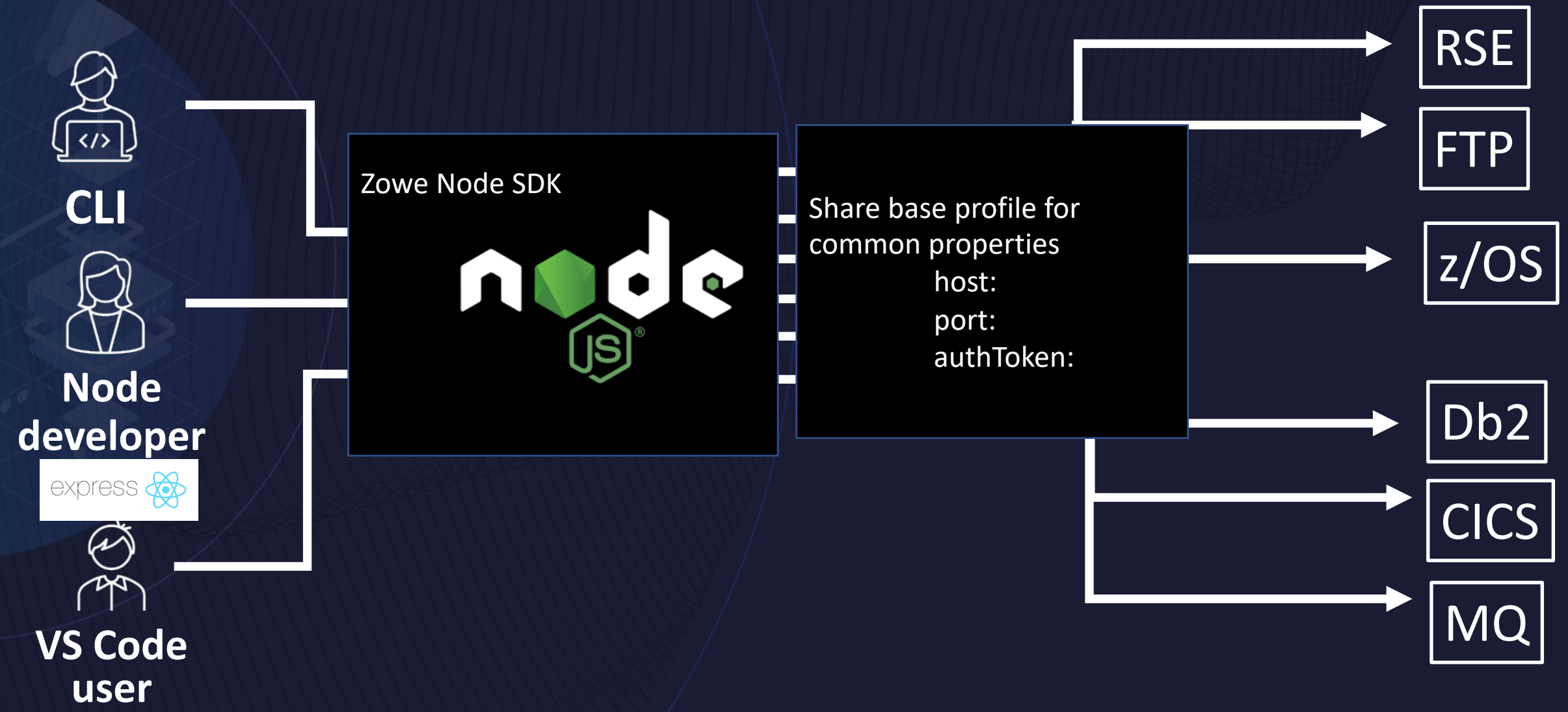
Token based authentication


```
Name: default
host: tvt5003.svl.ibm.com
port: 26502
rejectUnauthorized: false
tokenType: apimlAuthenticationToken
tokenValue: eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiJ3aW5jaGo…..
```

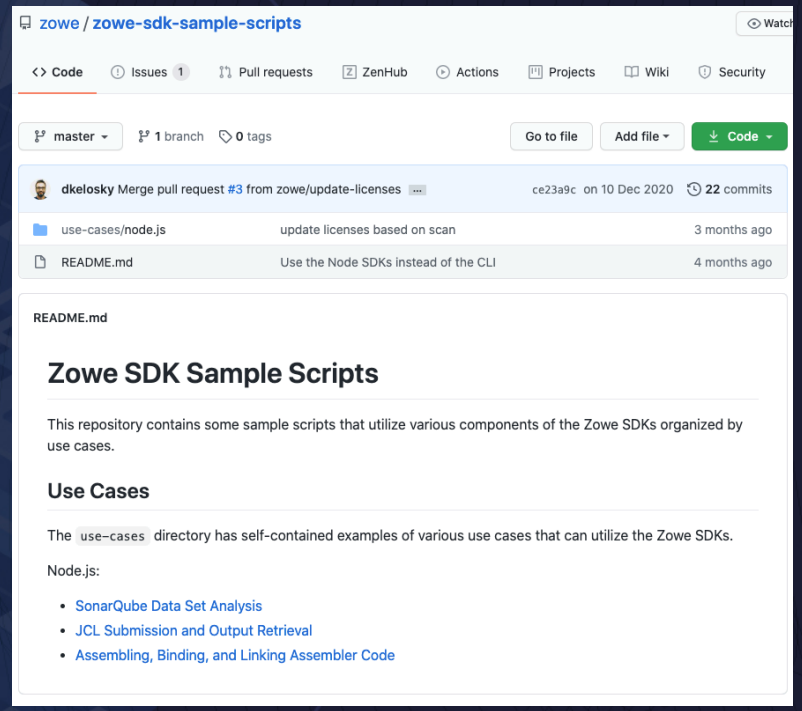
Multiple profiles with token based SSO



Zowe SDK


CLI
Node developer
express
VS Code user
Zowe Node SDK
node
JS
Share base profile for common properties
host:
port:
authToken:
RSE
FTP
z/OS
Db2
CICS
MQ

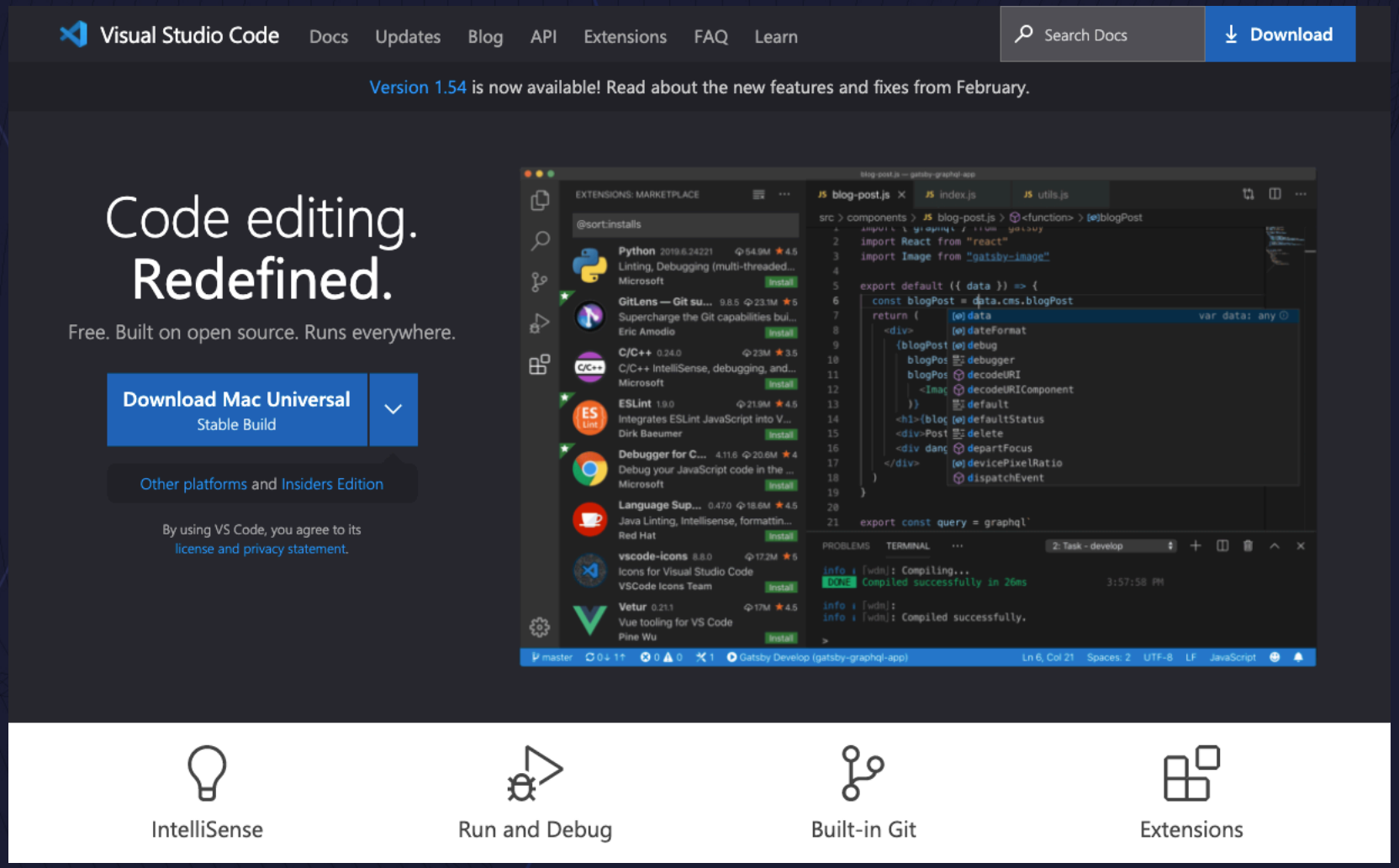
SDK Samples: https://github.com/zowe/zowe-sdk-sample-scripts



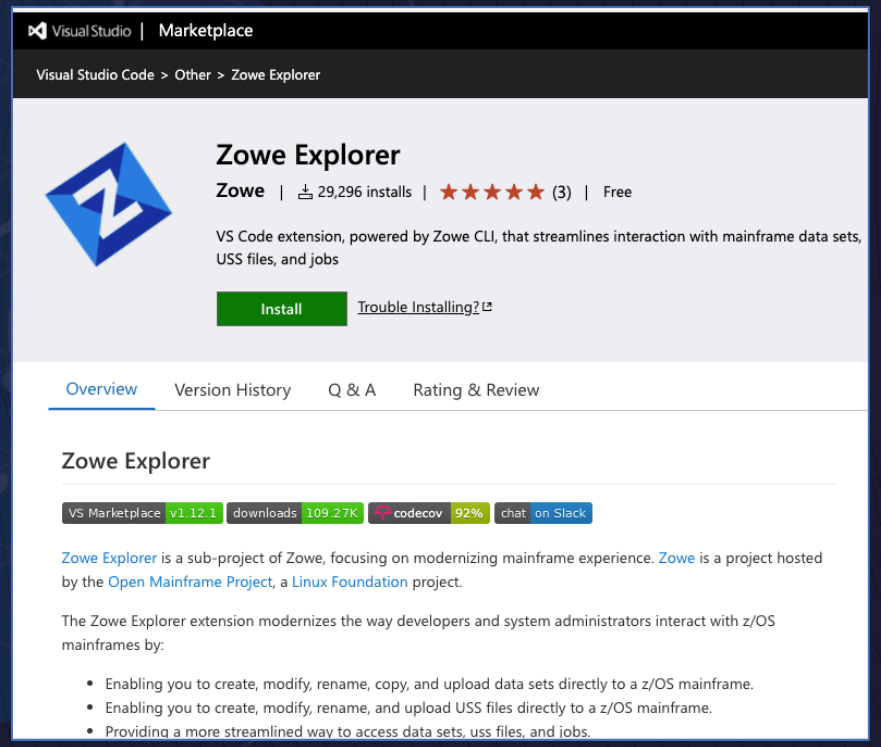

```
33  const path = require("path");
34  const fs = require("fs");
35  const files = require("@zowe/zos-files-for-zowe-sdk");
36  const jobs = require("@zowe/zos-jobs-for-zowe-sdk");
37  const imperative = require("@zowe/imperative");
```

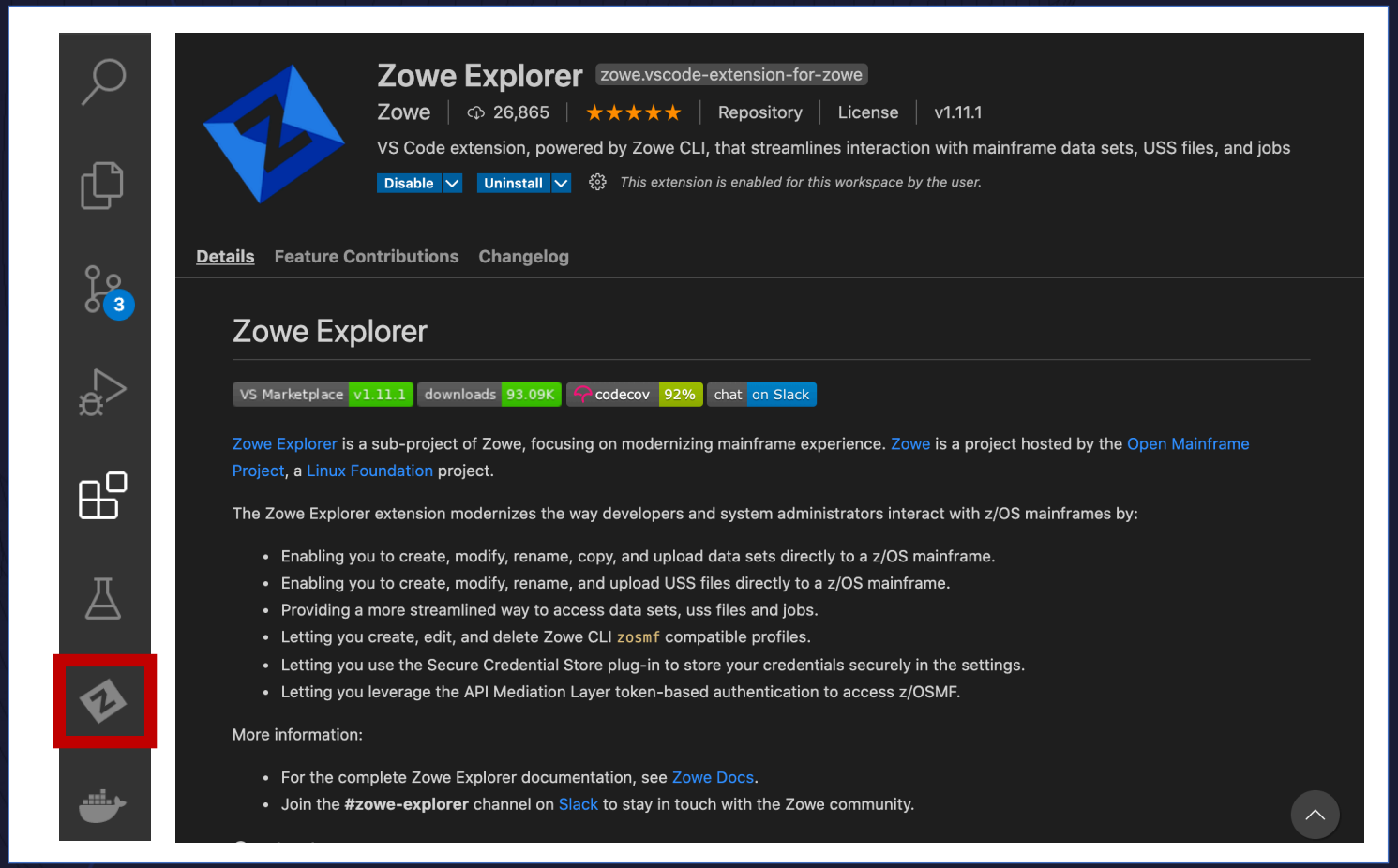
```
186 /*********************************************************************
187  *   Run JCL that was uploaded                                       *
188  *********************************************************************/
189
190     let owner;
191     let jobid;
192     let jobname;
193
194     console.log(`Running JCL in file: ${properties.localFile}`);
195     try {
196         const run = await jobs.SubmitJobs.submitJob(session, `${properties.dataset.dsn}(${properties.dataset.member})`);
197         console.log("Run API response: ");
198         console.log(run);
199         console.log(`\n`);
200         owner = run.owner;
201         jobid = run.jobid;
202         jobname = run.jobname;
203     } catch (err) {
204         console.error(`Failed to run job: ${err.message}`)
205         process.exit(1);
206     }
207
208 /*********************************************************************
209  *   Let the job run for awhile                                      *
210  *********************************************************************/
211
212     await delay(2000);
213
214 /*********************************************************************
215  *   Wait for the job to be out of input and execution               *
216  *********************************************************************/
217
218     let status = "INPUT";
219     let checkNum = 0;
220     let response;
221     console.log(`Check job status`);
222
223     while (( status == "INPUT" || status == "ACTIVE" ) && checkNum < 100 ) {
224
225         checkNum = checkNum + 1;
226         try {
227             response = await jobs.GetJobs.getJob(session, jobid);
228             status = response.status;
229             console.log(`Job ${jobid} status check #${checkNum}: ${status}`)
230         } catch (err) {
```

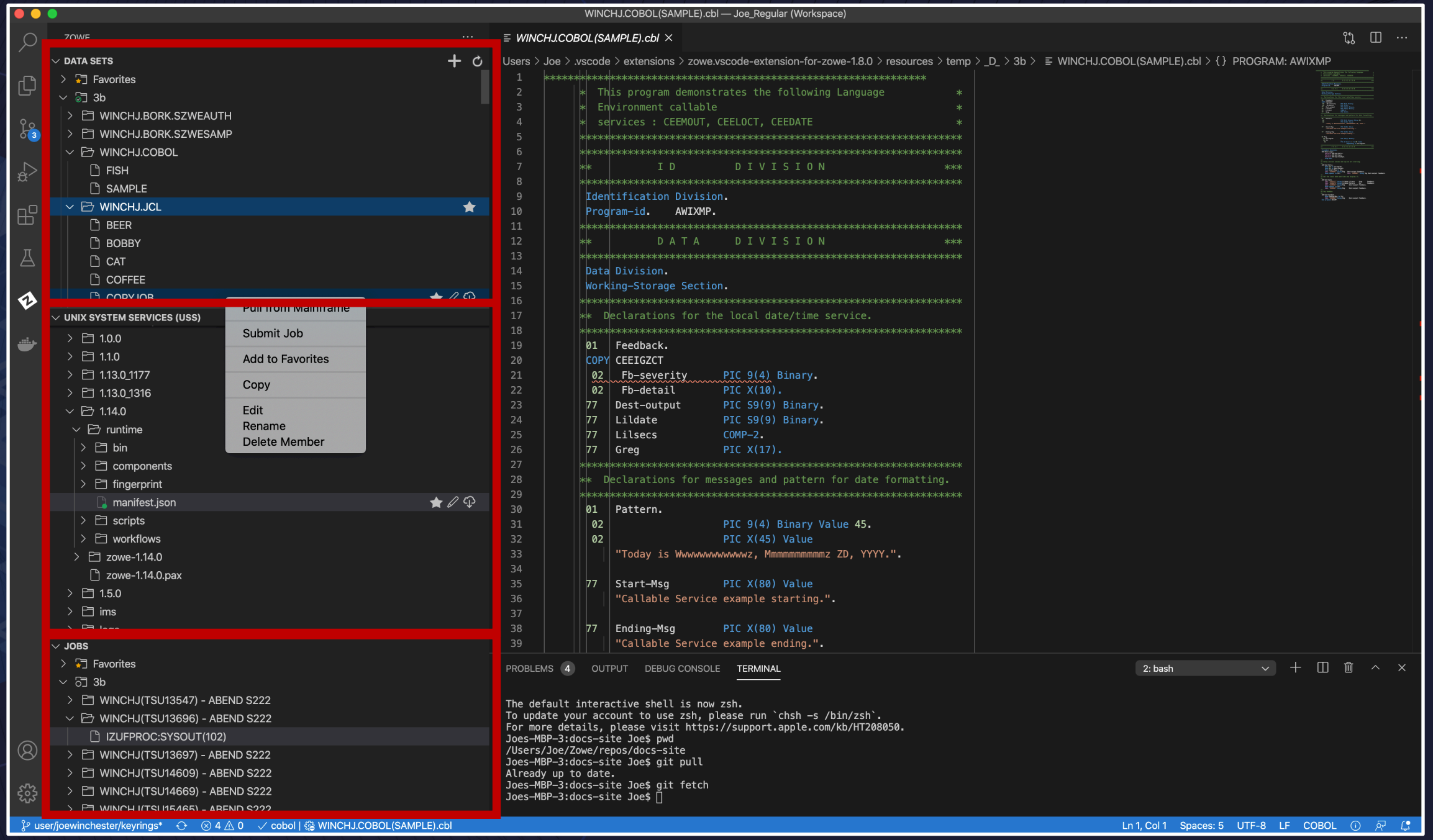
VS Code: https://code.visualstudio.com/



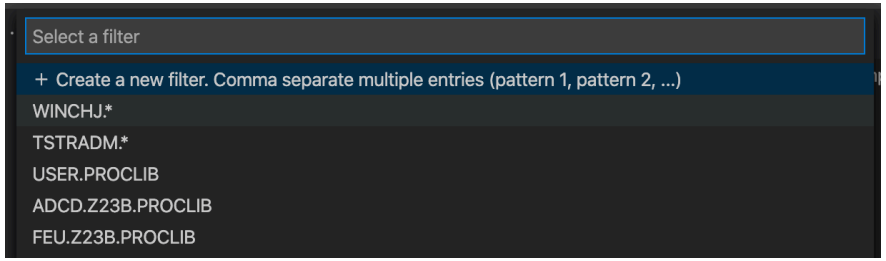
Visual Studio Marketplace Extension – Zowe Explorer

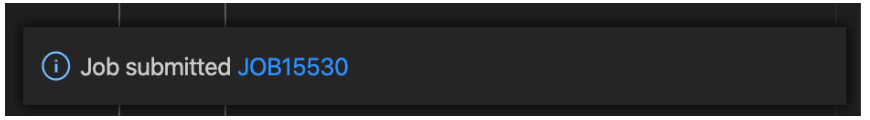


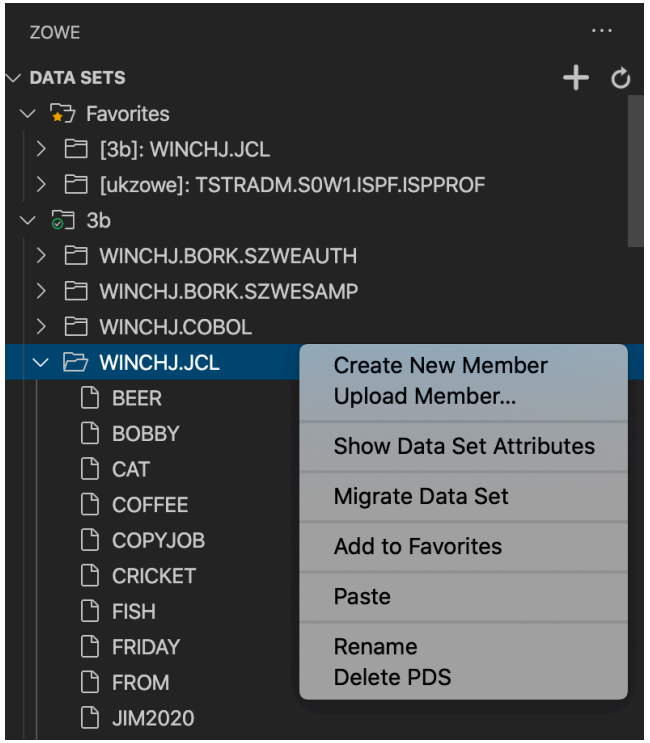


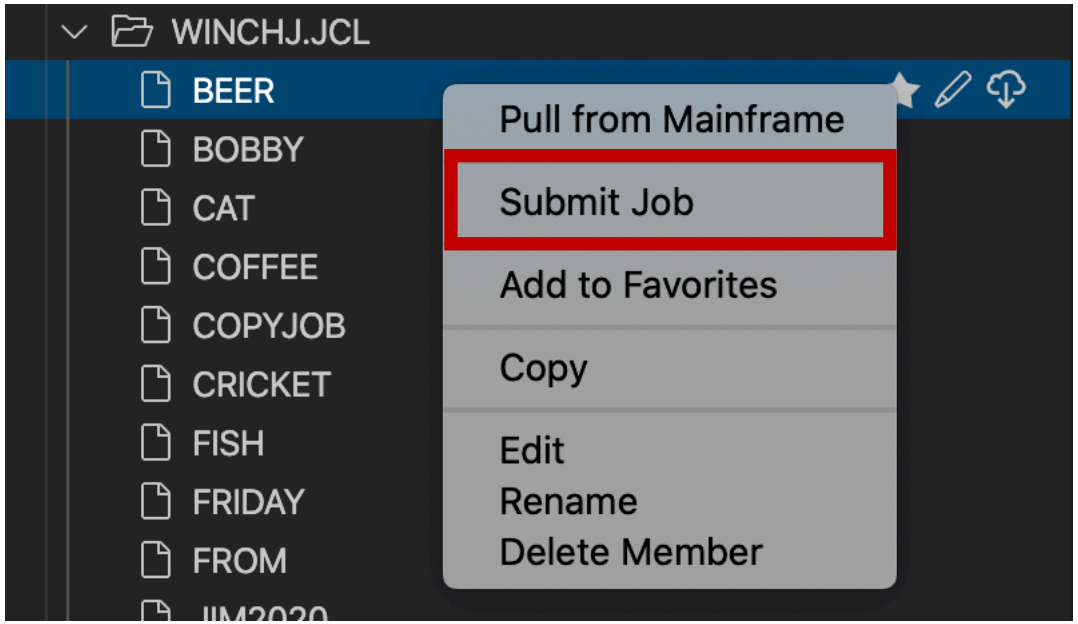

WINCHJ.COBOL(SAMPLE).cbl — Joe_Regular (Workspace)
DATA SETS
Favorites
3b
WINCHJ.BORK.SZWEAUTH
WINCHJ.BORK.SZWESAMP
WINCHJ.COBOL
FISH
SAMPLE
WINCHJ.JCL
BEER
BOBBY
CAT
COFFEE
UNIX SYSTEM SERVICES (USS)
1.0.0
1.1.0
1.13.0_1177
1.13.0_1316
1.14.0
runtime
bin
components
fingerprint
manifest.json
scripts
workflows
zowe-1.14.0
zowe-1.14.0.pax
1.5.0
ims
JOBS
Favorites
3b
WINCHJ(TSU13547) - ABEND S222
WINCHJ(TSU13696) - ABEND S222
IZUFPROC:SYSOUT(102)
WINCHJ(TSU13697) - ABEND S222
WINCHJ(TSU14609) - ABEND S222
WINCHJ(TSU14669) - ABEND S222
Submit Job
Add to Favorites
Copy
Edit
Rename
Delete Member
WINCHJ.COBOL(SAMPLE).cbl
Users > Joe > .vscode > extensions > zowe.vscode-extension-for-zowe-1.8.0 > resources > temp > _D_ > 3b > WINCHJ.COBOL(SAMPLE).cbl > { } PROGRAM: AWIXMP
Identification Division.
Program-id. AWIXMP.
Data Division.
Working-Storage Section.
01 Feedback.
COPY CEEIGZCT
02 Fb-severity PIC 9(4) Binary.
02 Fb-detail PIC X(10).
77 Dest-output PIC S9(9) Binary.
77 Lildate PIC S9(9) Binary.
77 Lilsecs COMP-2.
77 Greg PIC X(17).
01 Pattern.
02 PIC 9(4) Binary Value 45.
02 PIC X(45) Value
"Today is Wwwwwwwwwwwz, Mmmmmmmmmz ZD, YYYY.".
77 Start-Msg PIC X(80) Value
"Callable Service example starting.".
77 Ending-Msg PIC X(80) Value
"Callable Service example ending.".
PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
2: bash
The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
Joes-MBP-3:docs-site Joe$ pwd
/Users/Joe/Zowe/repos/docs-site
Joes-MBP-3:docs-site Joe$ git pull
Already up to date.
Joes-MBP-3:docs-site Joe$ git fetch
Joes-MBP-3:docs-site Joe$
user/joewinchester/keyrings*
4 0
cobol | WINCHJ.COBOL(SAMPLE).cbl
Ln 1, Col 1
Spaces: 5
UTF-8
LF
COBOL

Data Sets

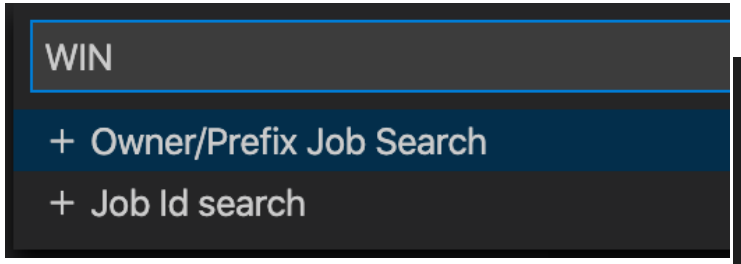

Select a filter
+ Create a new filter. Comma separate multiple entries (pattern 1, pattern 2, ...)
WINCHJ.*
TSTRADM.*
USER.PROCLIB
ADCD.Z23B.PROCLIB
FEU.Z23B.PROCLIB

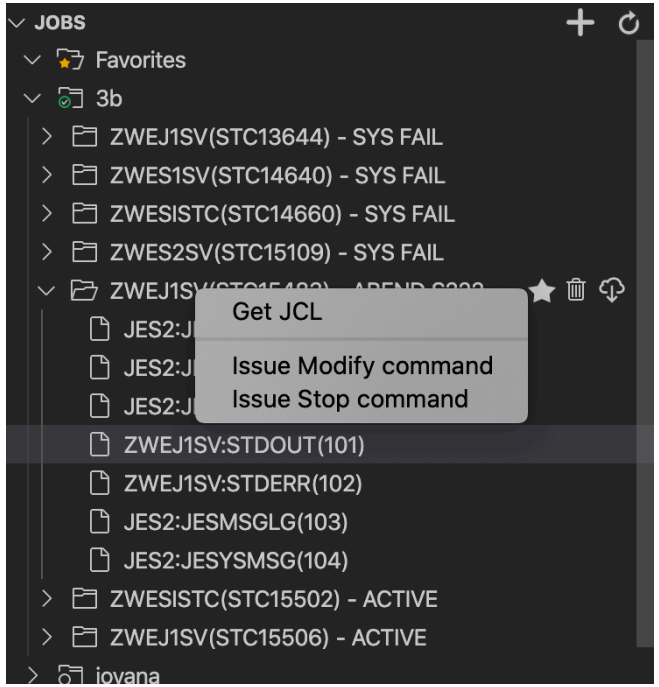

Job submitted JOB15530

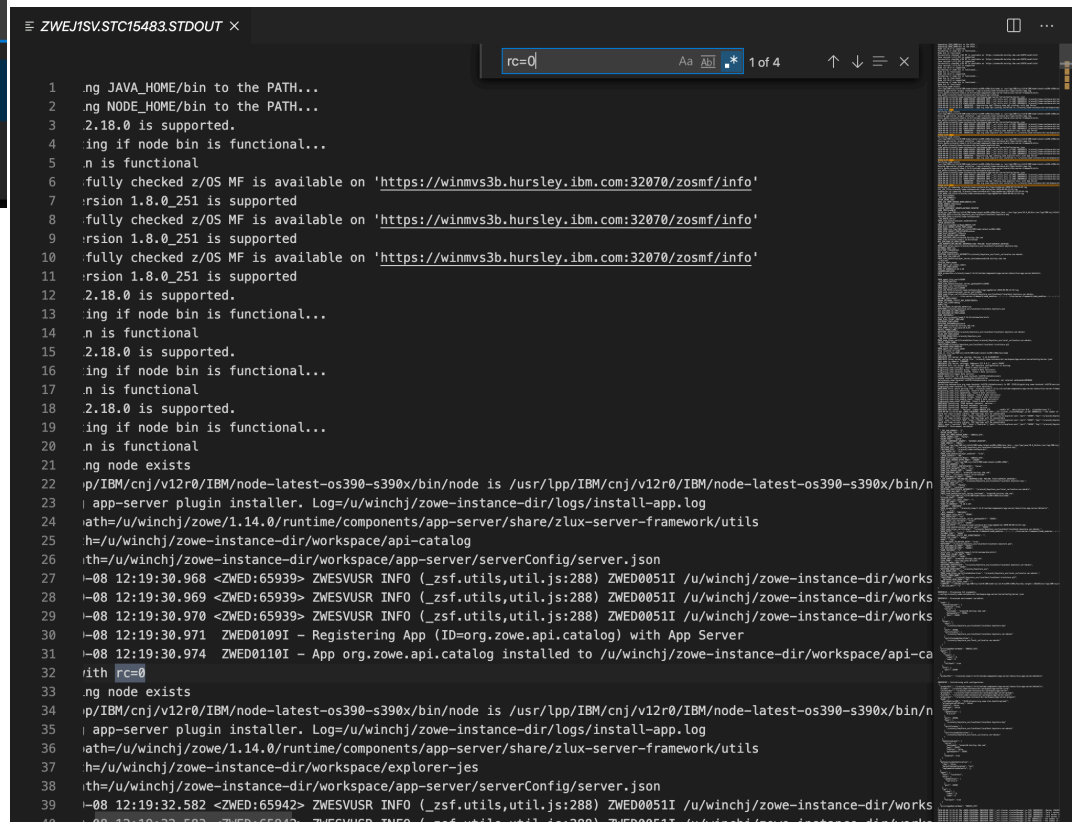

ZOWE
DATA SETS
Favorites
[3b]: WINCHJ.JCL
[ukzowe]: TSTRADM.S0W1.ISPF.ISPPROF
3b
WINCHJ.BORK.SZWEAUTH
WINCHJ.BORK.SZWESAMP
WINCHJ.COBOL
WINCHJ.JCL
BEER
BOBBY
CAT
COFFEE
COPYJOB
CRICKET
FISH
FRIDAY
FROM
JIM2020
Create New Member
Upload Member...
Show Data Set Attributes
Migrate Data Set
Add to Favorites
Paste
Rename
Delete PDS


WINCHJ.JCL
BEER
BOBBY
CAT
COFFEE
COPYJOB
CRICKET
FISH
FRIDAY
FROM
Pull from Mainframe
Submit Job
Add to Favorites
Copy
Edit
Rename
Delete Member

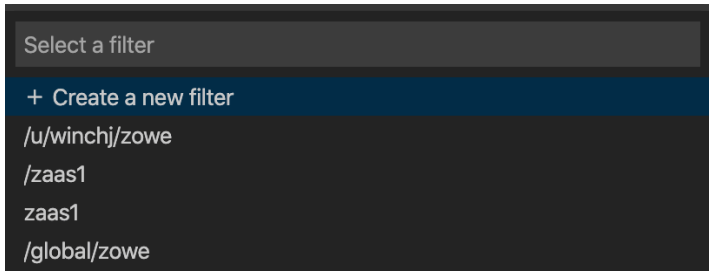
Jobs

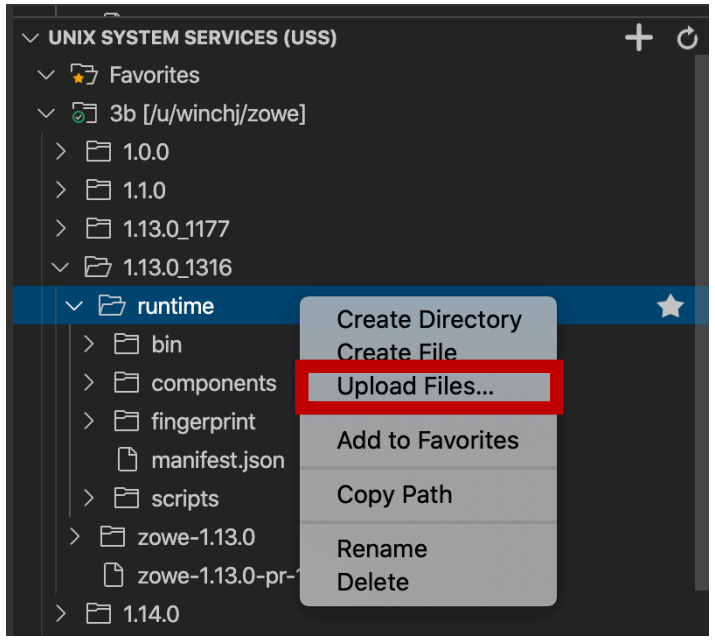

WIN
+ Owner/Prefix Job Search
+ Job Id search

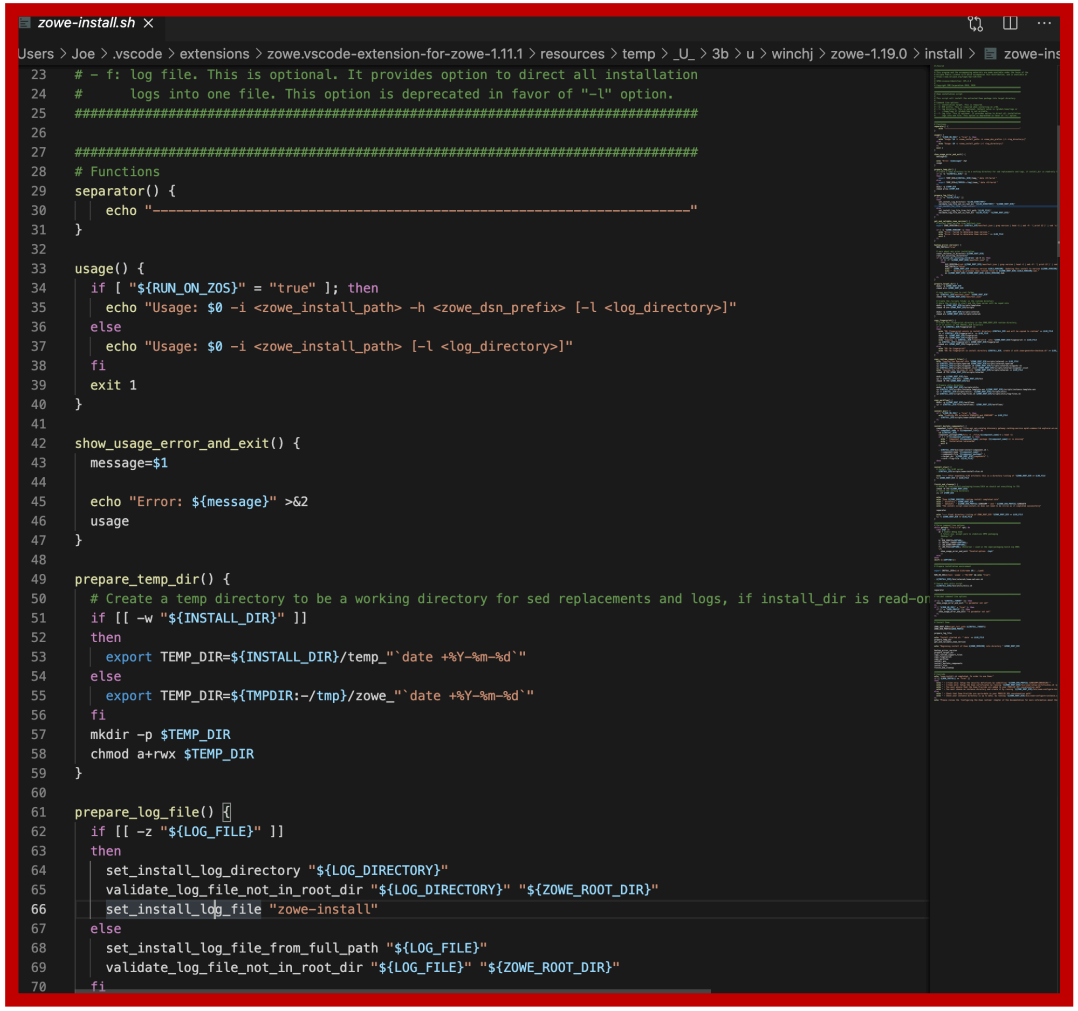

JOBS
Favorites
3b
ZWEJ1SV(STC13644) - SYS FAIL
ZWES1SV(STC14640) - SYS FAIL
ZWESISTC(STC14660) - SYS FAIL
ZWES2SV(STC15109) - SYS FAIL
Get JCL
Issue Modify command
Issue Stop command
ZWEJ1SV:STDOUT(101)
ZWEJ1SV:STDERR(102)
JES2:JESMSGLG(103)
JES2:JESYSMSG(104)
ZWESISTC(STC15502) - ACTIVE
ZWEJ1SV(STC15506) - ACTIVE
jovana


ZWEJ1SV.STC15483.STDOUT
rc=0
1 of 4
ng JAVA_HOME/bin to the PATH...
ng NODE_HOME/bin to the PATH...
2.18.0 is supported.
ing if node bin is functional...
n is functional
fully checked z/OS MF is available on 'https://winmvs3b.hursley.ibm.com:32070/zosmf/info'
rsion 1.8.0_251 is supported
fully checked z/OS MF is available on 'https://winmvs3b.hursley.ibm.com:32070/zosmf/info'
rsion 1.8.0_251 is supported
fully checked z/OS MF is available on 'https://winmvs3b.hursley.ibm.com:32070/zosmf/info'
rsion 1.8.0_251 is supported
2.18.0 is supported.
ing if node bin is functional...
n is functional
2.18.0 is supported.
ing if node bin is functional...
n is functional
2.18.0 is supported.
ing if node bin is functional...
n is functional
ng node exists
p/IBM/cnj/v12r0/IBM/node-latest-os390-s390x/bin/node is /usr/lpp/IBM/cnj/v12r0/IBM/node-latest-os390-s390x/bin/n
app-server plugin installer. Log=/u/winchj/zowe-instance-dir/logs/install-app.log
ath=/u/winchj/zowe/1.14.0/runtime/components/app-server/share/zlux-server-framework/utils
h=/u/winchj/zowe-instance-dir/workspace/api-catalog
th=/u/winchj/zowe-instance-dir/workspace/app-server/serverConfig/server.json
-08 12:19:30.968 <ZWED:65939> ZWESVUSR INFO (_zsf.utils,util.js:288) ZWED0051I /u/winchj/zowe-instance-dir/works
-08 12:19:30.969 <ZWED:65939> ZWESVUSR INFO (_zsf.utils,util.js:288) ZWED0051I /u/winchj/zowe-instance-dir/works
-08 12:19:30.970 <ZWED:65939> ZWESVUSR INFO (_zsf.utils,util.js:288) ZWED0051I /u/winchj/zowe-instance-dir/works
-08 12:19:30.971 ZWED0109I - Registering App (ID=org.zowe.api.catalog) with App Server
-08 12:19:30.974 ZWED0110I - App org.zowe.api.catalog installed to /u/winchj/zowe-instance-dir/workspace/api-ca
ith rc=0
ng node exists
p/IBM/cnj/v12r0/IBM/node-latest-os390-s390x/bin/node is /usr/lpp/IBM/cnj/v12r0/IBM/node-latest-os390-s390x/bin/n
app-server plugin installer. Log=/u/winchj/zowe-instance-dir/logs/install-app.log
ath=/u/winchj/zowe/1.14.0/runtime/components/app-server/share/zlux-server-framework/utils
h=/u/winchj/zowe-instance-dir/workspace/explorer-jes
th=/u/winchj/zowe-instance-dir/workspace/app-server/serverConfig/server.json
-08 12:19:32.582 <ZWED:65942> ZWESVUSR INFO (_zsf.utils,util.js:288) ZWED0051I /u/winchj/zowe-instance-dir/works

Unix System Services



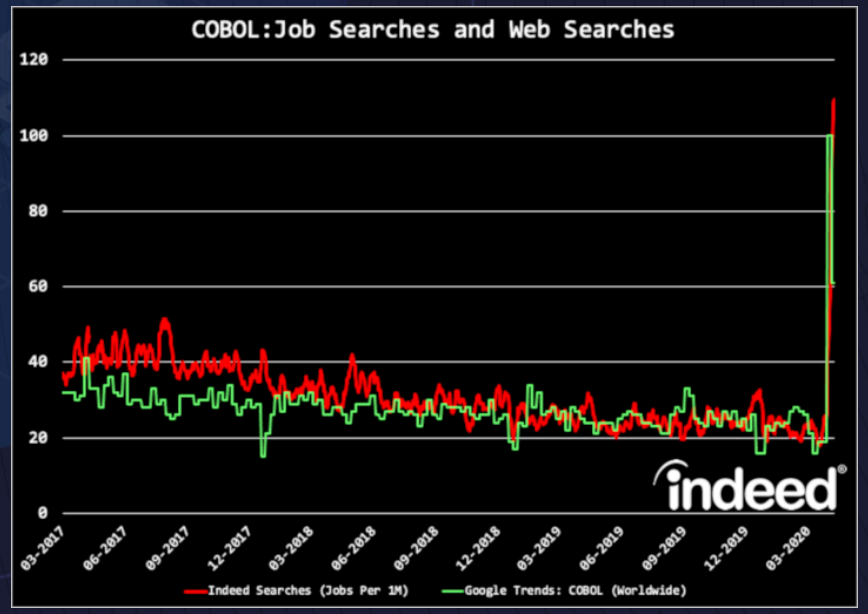




techrepublic.com/article/cobol-programmers-are-in-demand-to-fight-the-coronavirus-pandemic/?ftag=COS-05-10aaa0g&taid=5e932e43922b190...

TechRepublic. SEARCH IT Policy Downloads 5G Developer Top DaaS providers Security More Newsletters Forums Resource Librar

COBOL programmers are in demand to fight the coronavirus pandemic



Home › Latest News › Business › COBOL given a new life by COVID-19

Latest News | Business | Public Sector

COBOL given a new life by COVID-19

By **Ian Murphy** · April 29, 2020

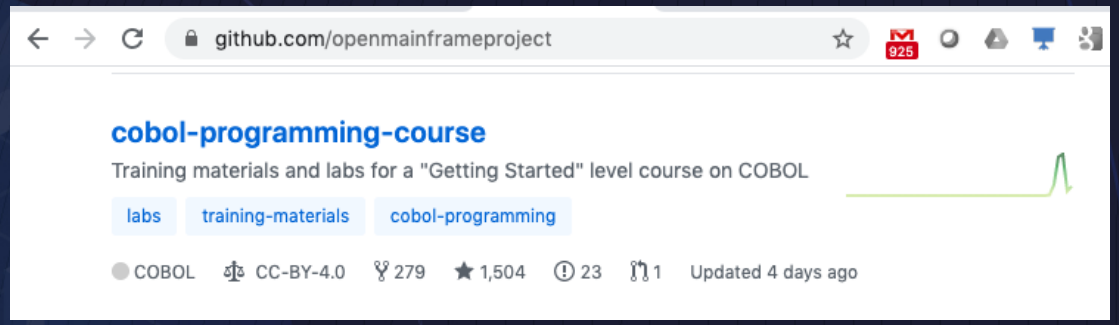
COBOL, the language that refuses to die, has been given another lease of life by COVID-19. Research from Job Site, Indeed, shows a significant surge in demand for COBOL programmers. Driving this is the need for mainframe programmers to work on older systems that run on mainframes, used by organisations in both the public and private sector.

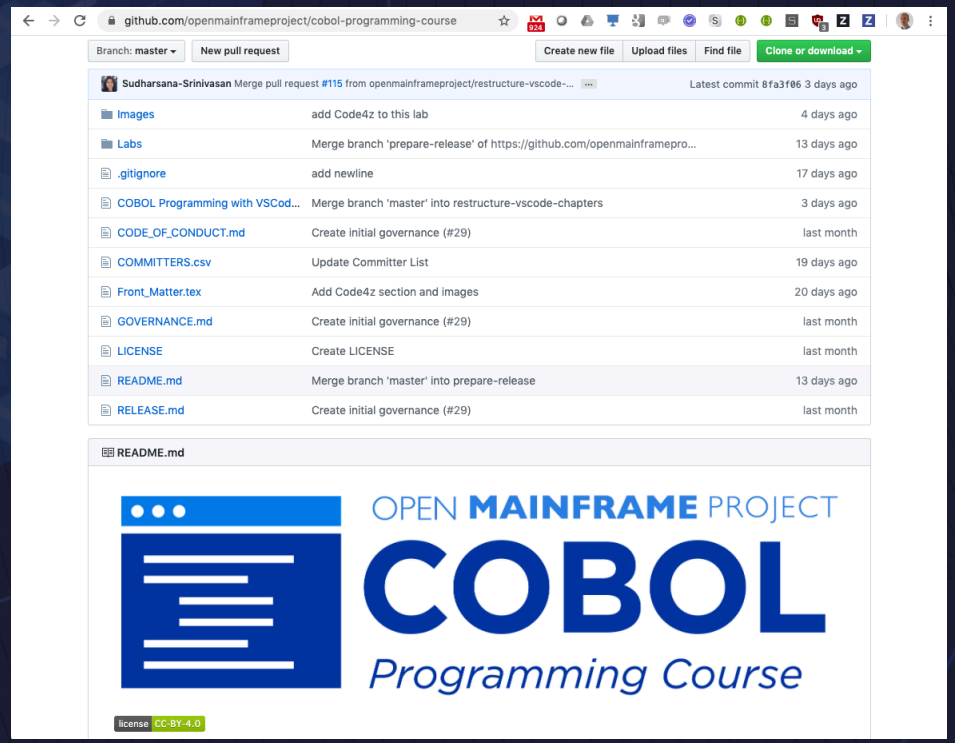
Indeed passed its data to NTT DATA UK to analyse. It compared that data with similar data from Google Trends. Simon Williams, CEO of NTT DATA UK, said: *"It comes as no surprise that there has been a surge in interest in COBOL. There are a lot of legacy systems in operation, reliant on legacy code. This has to be a wakeup call – if organisations don't have the skills to maintain their code, they need to modernise.*

Simon Williams, CEO of NTT DATA UK

Working with the Linux Foundation's Open Mainframe Project, IBM stood up an employment and volunteer forum and a technical forum on Thursday to match COBOL programmers with state agencies that are looking for additional help. The "Calling all COBOL Programmers" forum asks volunteers or those looking for a job to list their name, location availability and resume so that government agencies can reach out if they fit a specific need. The technical forum is available for government agencies to get "extra reassurance" on the 61-year-old programming language.

"[IBM] knew which states were going to be hotspots, and we proactively reached out to each of those states," said Barry Baker, vice president of IBM Z Software, a mainframe platform that many states run unemployment systems on.





Syntax Highlighting and Coloring

The Code4z package enables coloring of keywords, paragraphs, and variables in different colors to make the code easier to navigate.

Syntax and Semantic Check

The COBOL Language Support extension checks for mistakes and errors in COBOL code. The syntax check feature reviews the whole content of the code, highlights errors and suggests fixes.

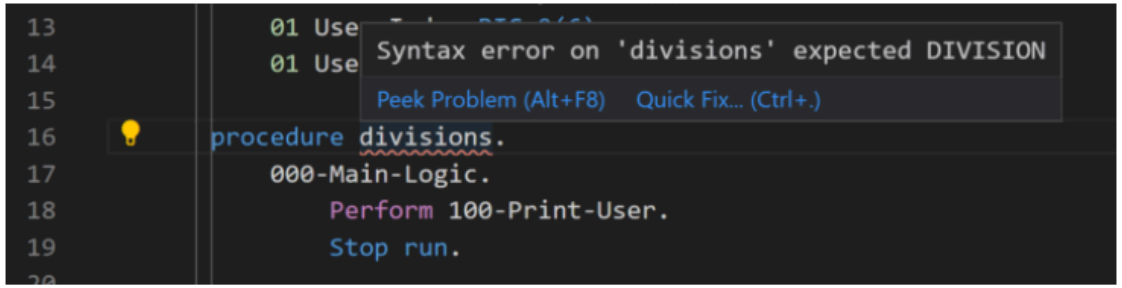


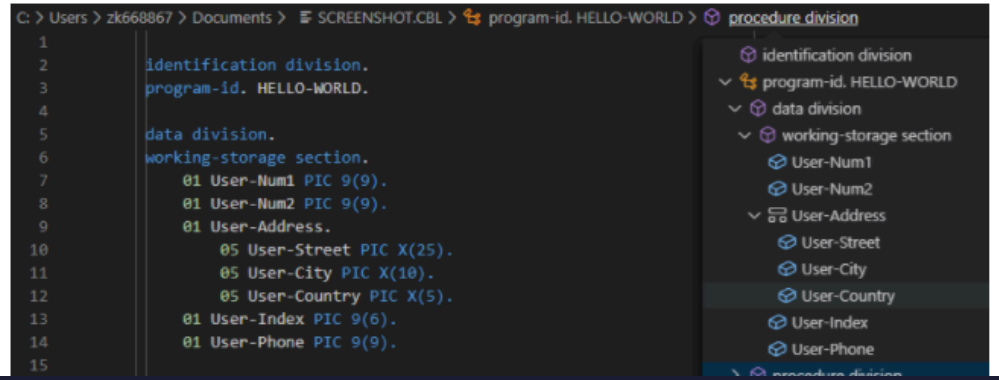
Figure 1. The syntax and semantic check feature highlights an error.

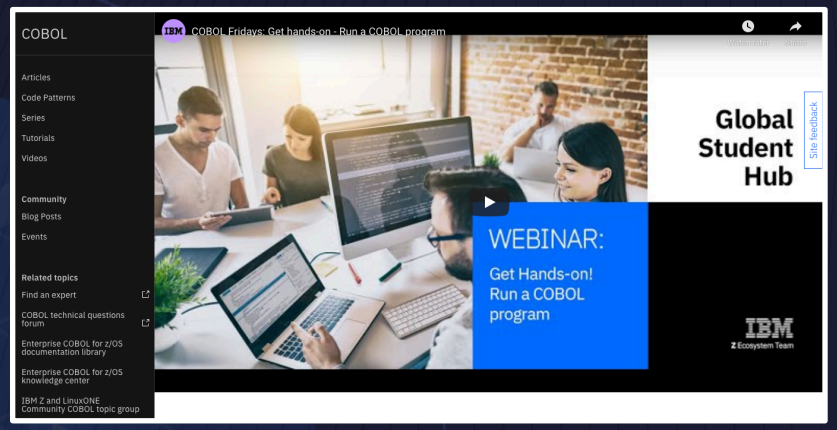
Navigation of Code

The Code4z package enables several features for ease of navigation through code.

Breadcrumb View

The breadcrumb view across the top of the editor shows where the current line of code exists within the structure of the COBOL source code. You can click each element on the bar to see that section of the code highlighted, or to select a code element within the section and navigate to it.



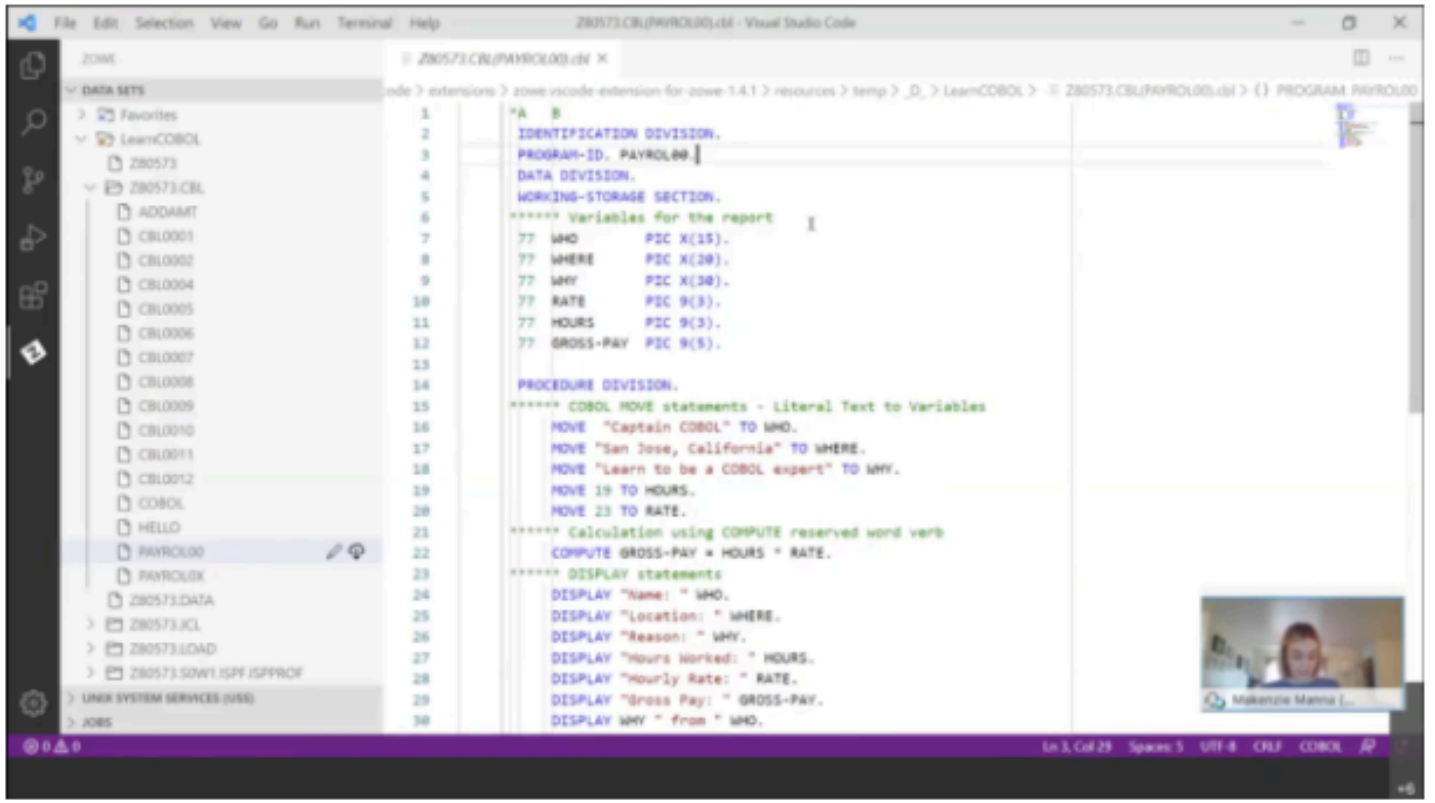


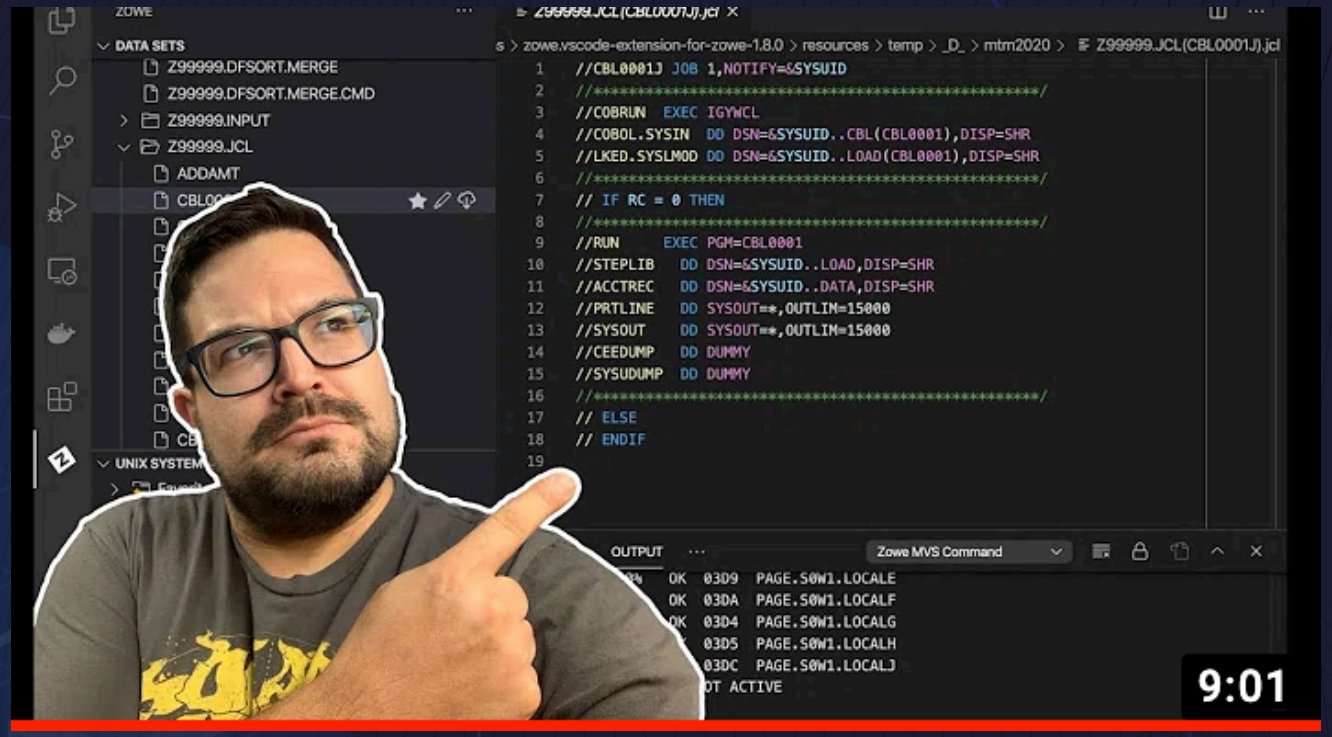
Video | Tech Talks

COBOL Fridays: Connect COBOL applications with APIs

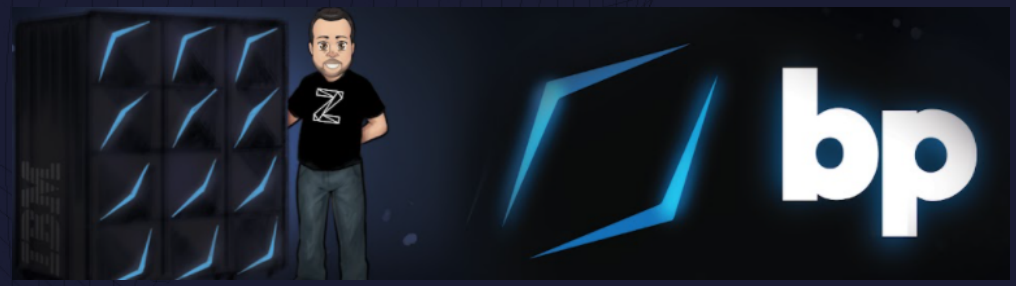
September 4, 2020

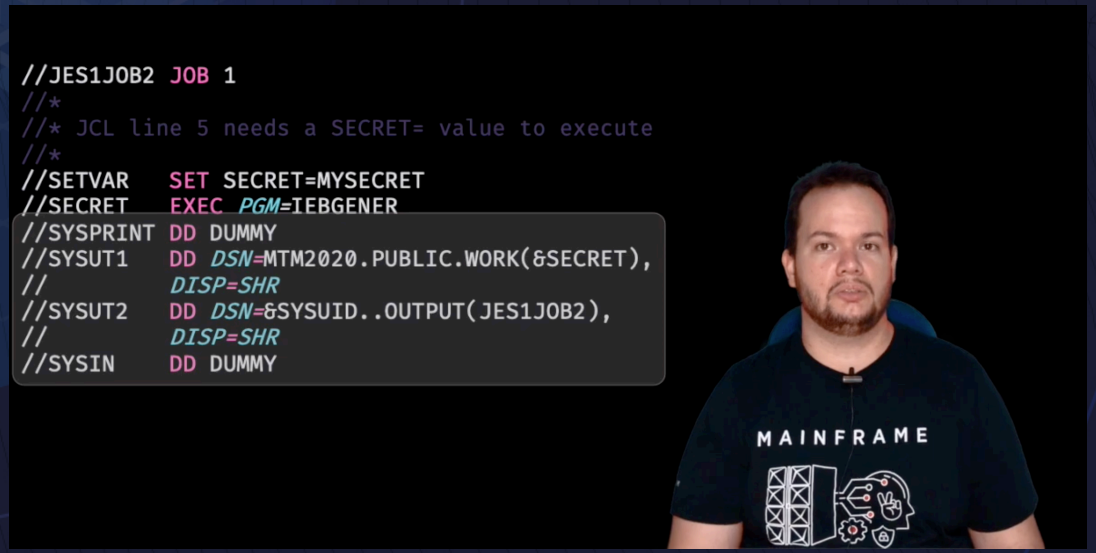
COBOL Fridays 2: Get hands on! Run a COBOL program

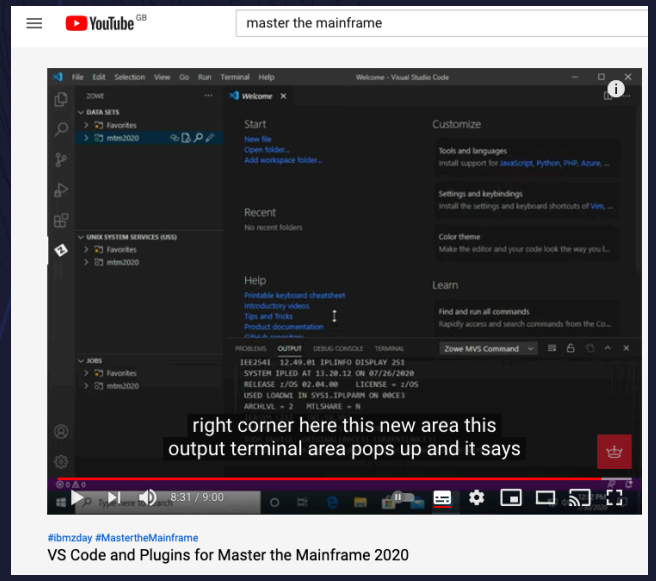


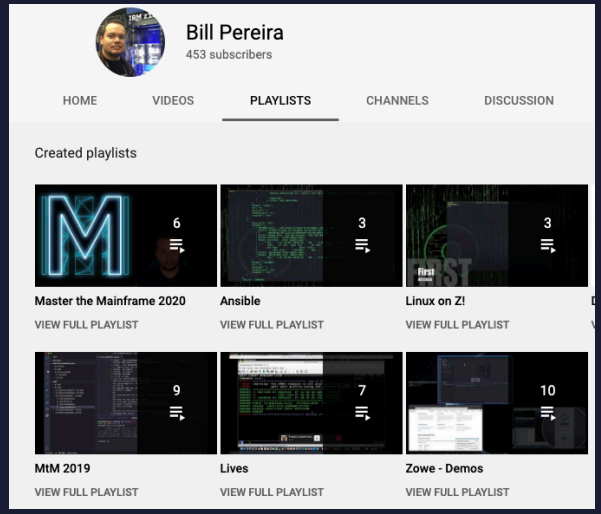

ZOWE
DATA SETS
Z99999.DFSORT.MERGE
Z99999.DFSORT.MERGE.CMD
Z99999.INPUT
Z99999.JCL
ADDAMT
UNIX SYSTEM
zowe.vscode-extension-for-zowe-1.8.0 > resources > temp > _D_ > mtm2020 > Z99999.JCL(CBL0001J).jcl
//CBL0001J JOB 1,NOTIFY=&SYSUID
//*****/
//COBRUN EXEC IGYWCL
//COBOL.SYSIN DD DSN=&SYSUID..CBL(CBL0001),DISP=SHR
//LKED.SYSLMOD DD DSN=&SYSUID..LOAD(CBL0001),DISP=SHR
//*****/
// IF RC = 0 THEN
//*****/
//RUN EXEC PGM=CBL0001
//STEPLIB DD DSN=&SYSUID..LOAD,DISP=SHR
//ACCTREC DD DSN=&SYSUID..DATA,DISP=SHR
//PRTLINE DD SYSOUT=*,OUTLIM=15000
//SYSOUT DD SYSOUT=*,OUTLIM=15000
//CEEDUMP DD DUMMY
//SYSUDUMP DD DUMMY
//*****/
// ELSE
// ENDIF
OUTPUT
Zowe MVS Command
OK 03D9 PAGE.S0W1.LOCALE
OK 03DA PAGE.S0W1.LOCALF
OK 03D4 PAGE.S0W1.LOCALG
03D5 PAGE.S0W1.LOCALH
03DC PAGE.S0W1.LOCALJ
ACTIVE
9:01


MASTER THE
MAINFRAME

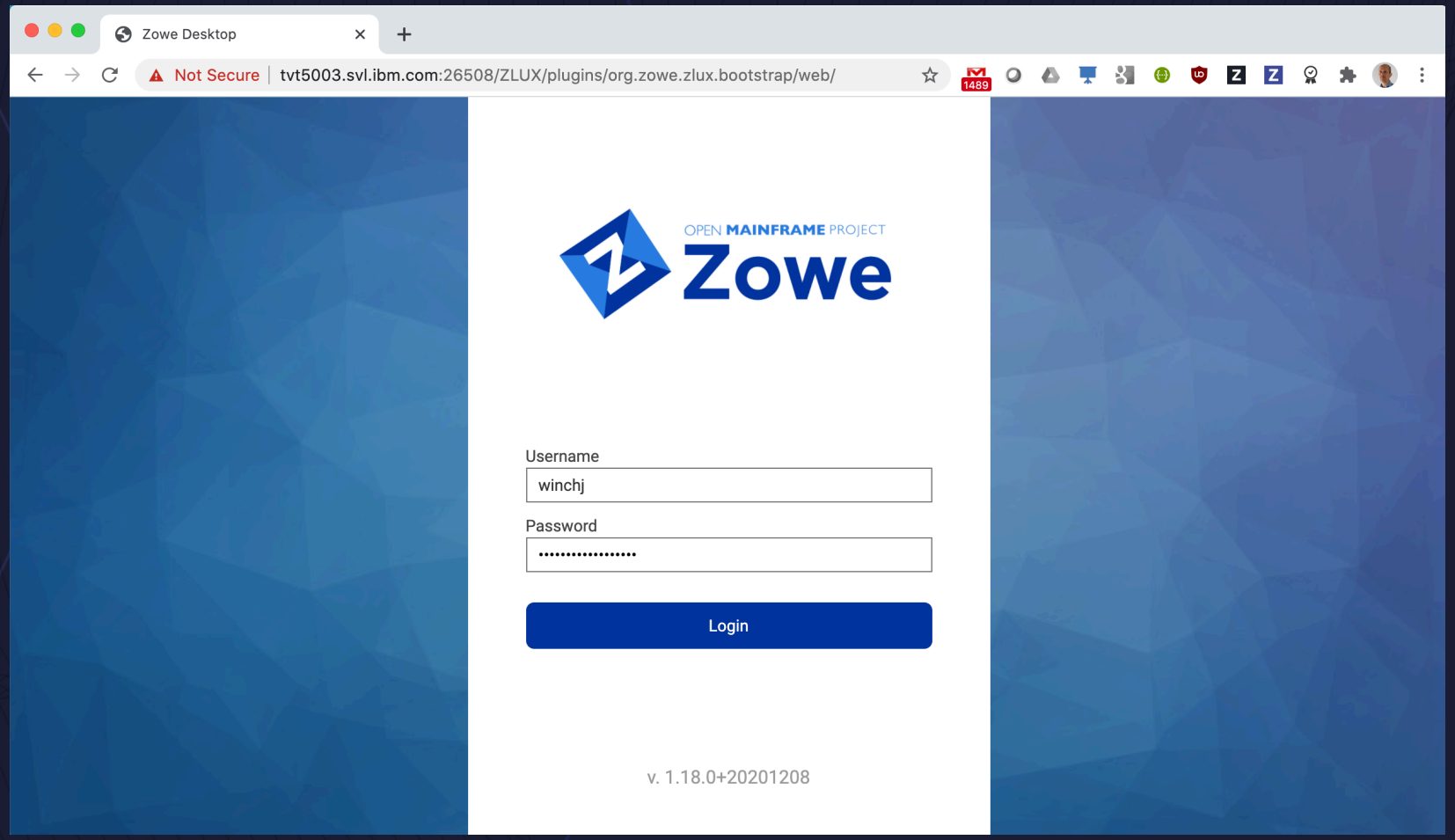

bp


//JES1JOB2 JOB 1
//*
//* JCL line 5 needs a SECRET= value to execute
//*
//SETVAR SET SECRET=MYSECRET
//SECRET EXEC PGM=IEBGENER
//SYSPRINT DD DUMMY
//SYSUT1 DD DSN=MTM2020.PUBLIC.WORK(&SECRET),
// DISP=SHR
//SYSUT2 DD DSN=&SYSUID..OUTPUT(JES1JOB2),
// DISP=SHR
//SYSIN DD DUMMY
MAINFRAME

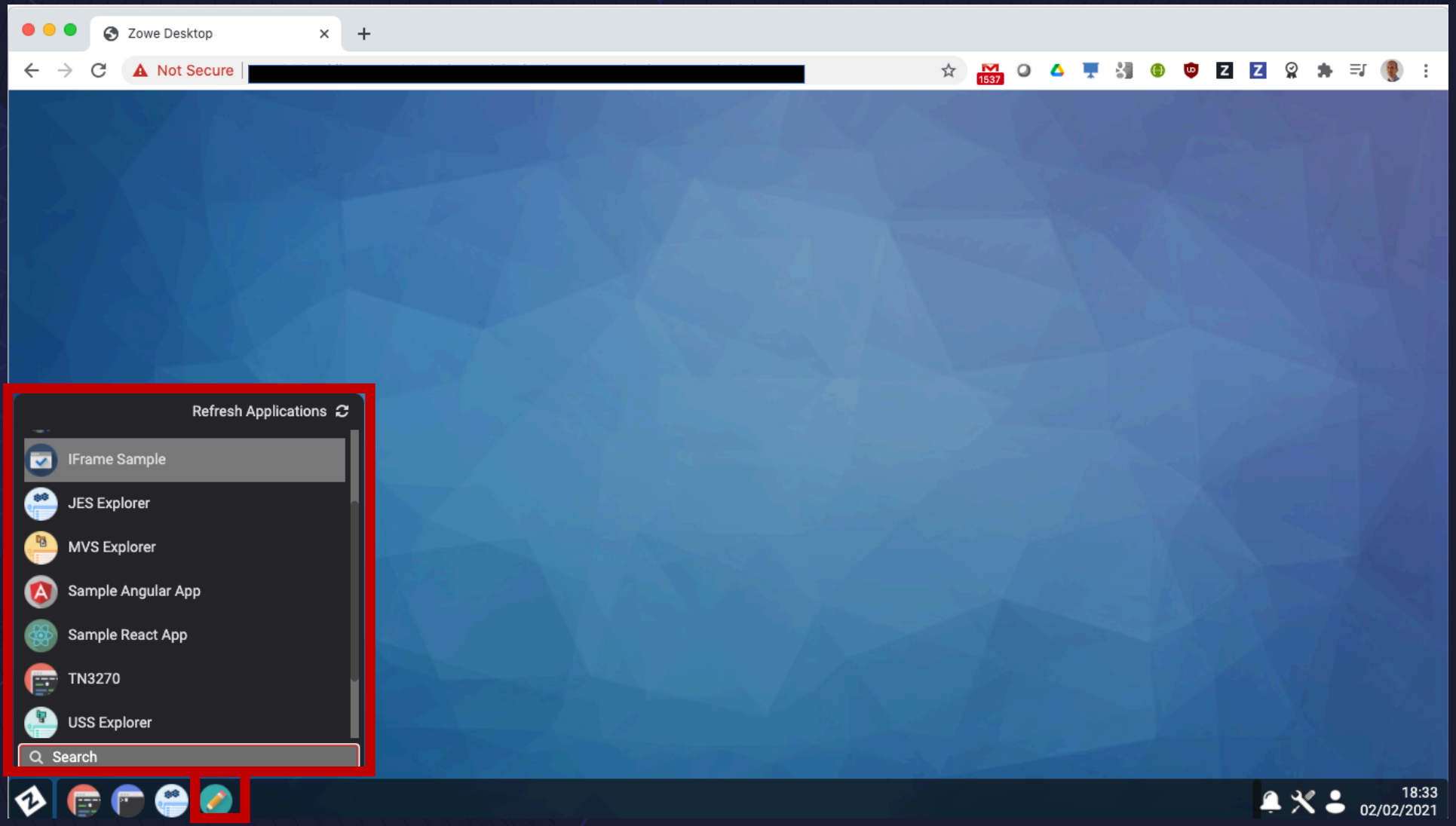

YouTube GB
master the mainframe
right corner here this new area this
output terminal area pops up and it says
8:31 / 9:00
#ibmzday #MastertheMainframe
VS Code and Plugins for Master the Mainframe 2020


Bill Pereira
453 subscribers
HOME
VIDEOS
PLAYLISTS
CHANNELS
DISCUSSION
Created playlists
Master the Mainframe 2020
VIEW FULL PLAYLIST
Ansible
VIEW FULL PLAYLIST
Linux on Z!
VIEW FULL PLAYLIST
MtM 2019
VIEW FULL PLAYLIST
Lives
VIEW FULL PLAYLIST
Zowe - Demos
VIEW FULL PLAYLIST

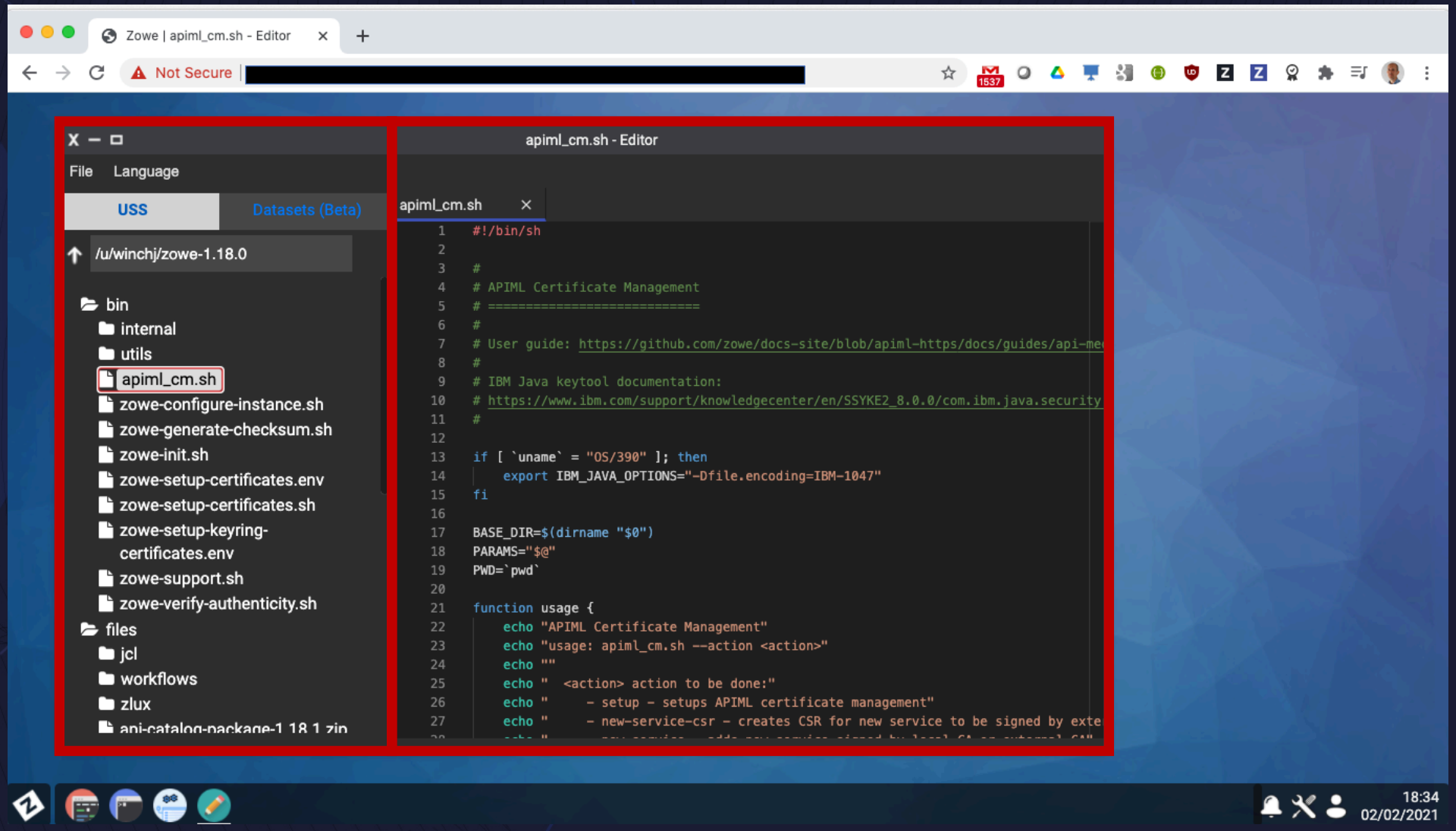
Zowe Desktop



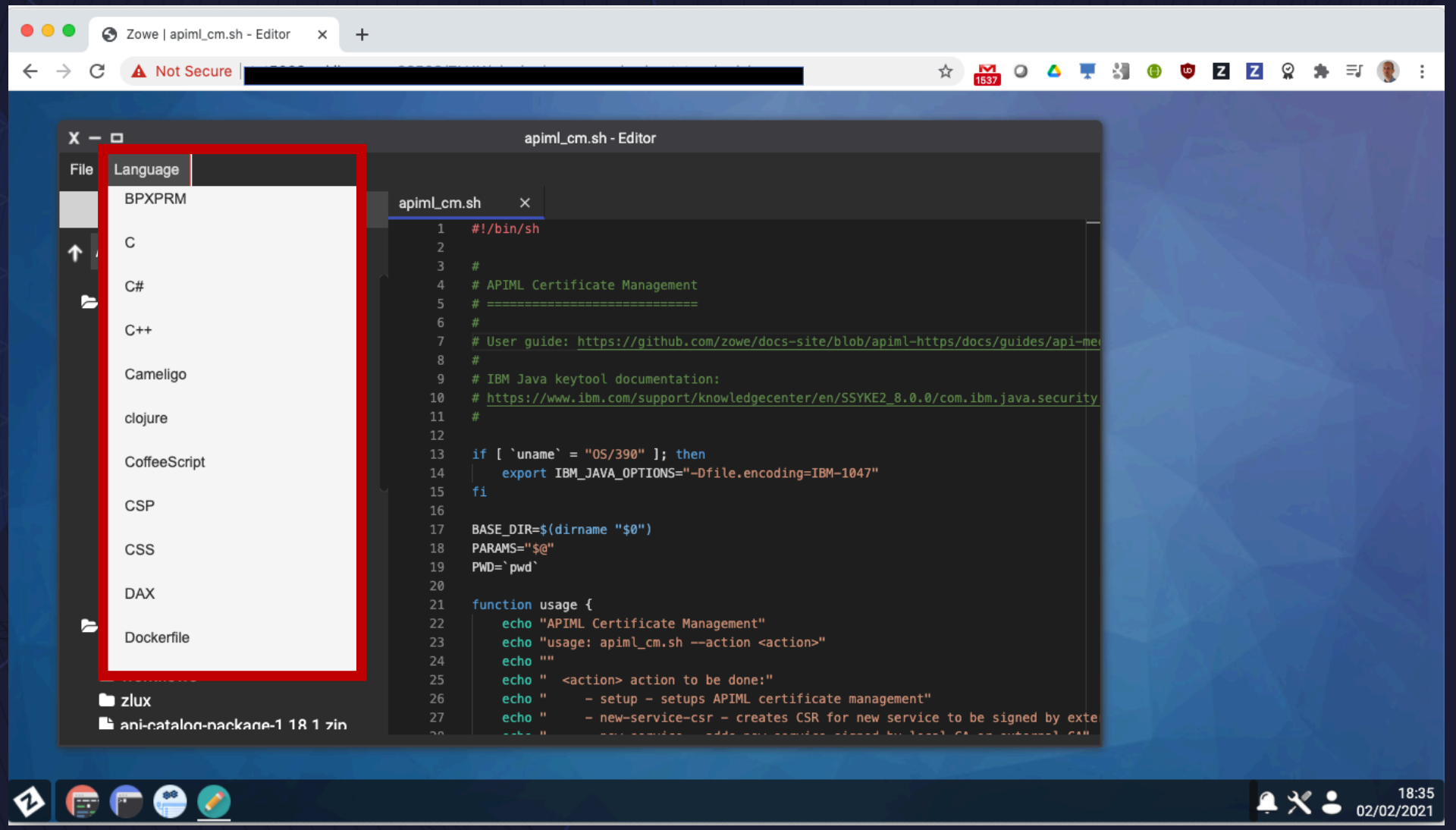
App launch bar



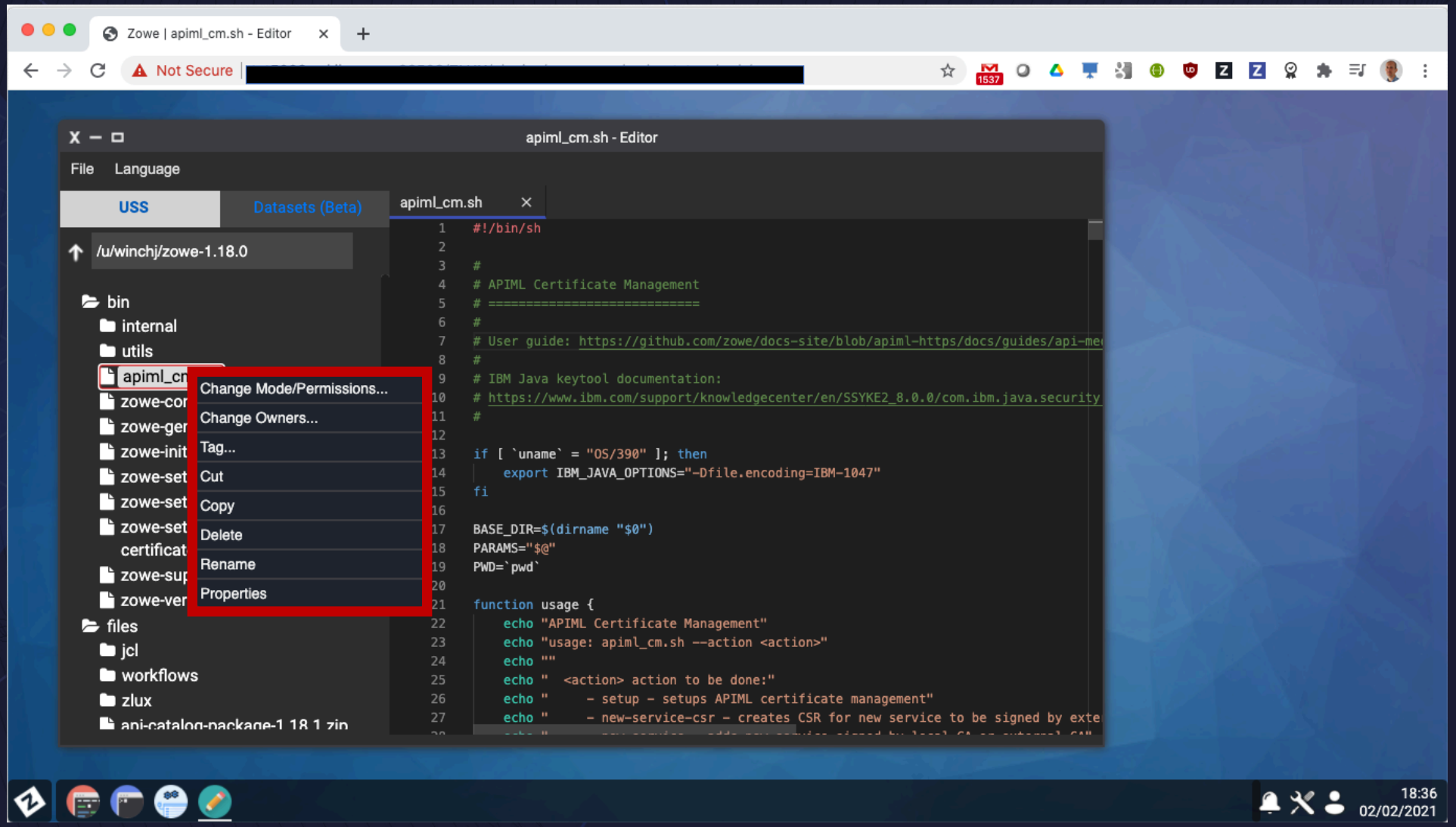
File Editor


Zowe | apiml_cm.sh - Editor
Not Secure
File
Language
USS
Datasets (Beta)
/u/winchj/zowe-1.18.0
bin
internal
utils
apiml_cm.sh
zowe-configure-instance.sh
zowe-generate-checksum.sh
zowe-init.sh
zowe-setup-certificates.env
zowe-setup-certificates.sh
zowe-setup-keyring-certificates.env
zowe-support.sh
zowe-verify-authenticity.sh
files
jcl
workflows
zlux
apiml_cm.sh - Editor
apiml_cm.sh
#!/bin/sh
#
APIML Certificate Management
============================
#
User guide: https://github.com/zowe/docs-site/blob/apiml-https/docs/guides/api-me
#
IBM Java keytool documentation:
https://www.ibm.com/support/knowledgecenter/en/SSYKE2_8.0.0/com.ibm.java.security
#
if [`uname` = "OS/390"]; then
export IBM_JAVA_OPTIONS="-Dfile.encoding=IBM-1047"
fi
BASE_DIR=$(dirname "$0")
PARAMS="$@"
PWD=`pwd`
function usage {
echo "APIML Certificate Management"
echo "usage: apiml_cm.sh --action <action>"
echo ""
echo " <action> action to be done:"
echo "   - setup - setups APIML certificate management"
echo "   - new-service-csr - creates CSR for new service to be signed by exte
18:34
02/02/2021

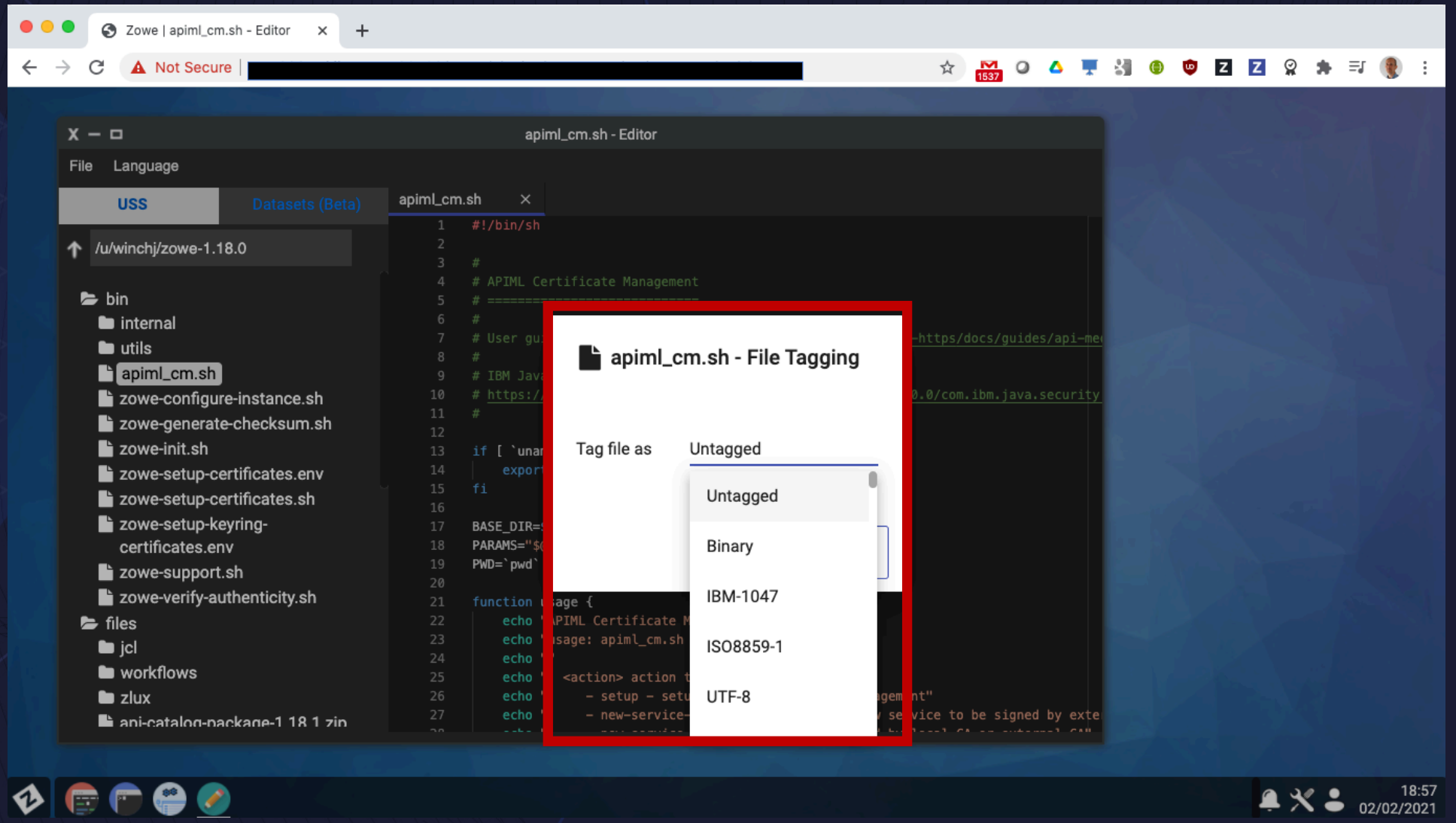
File Content types



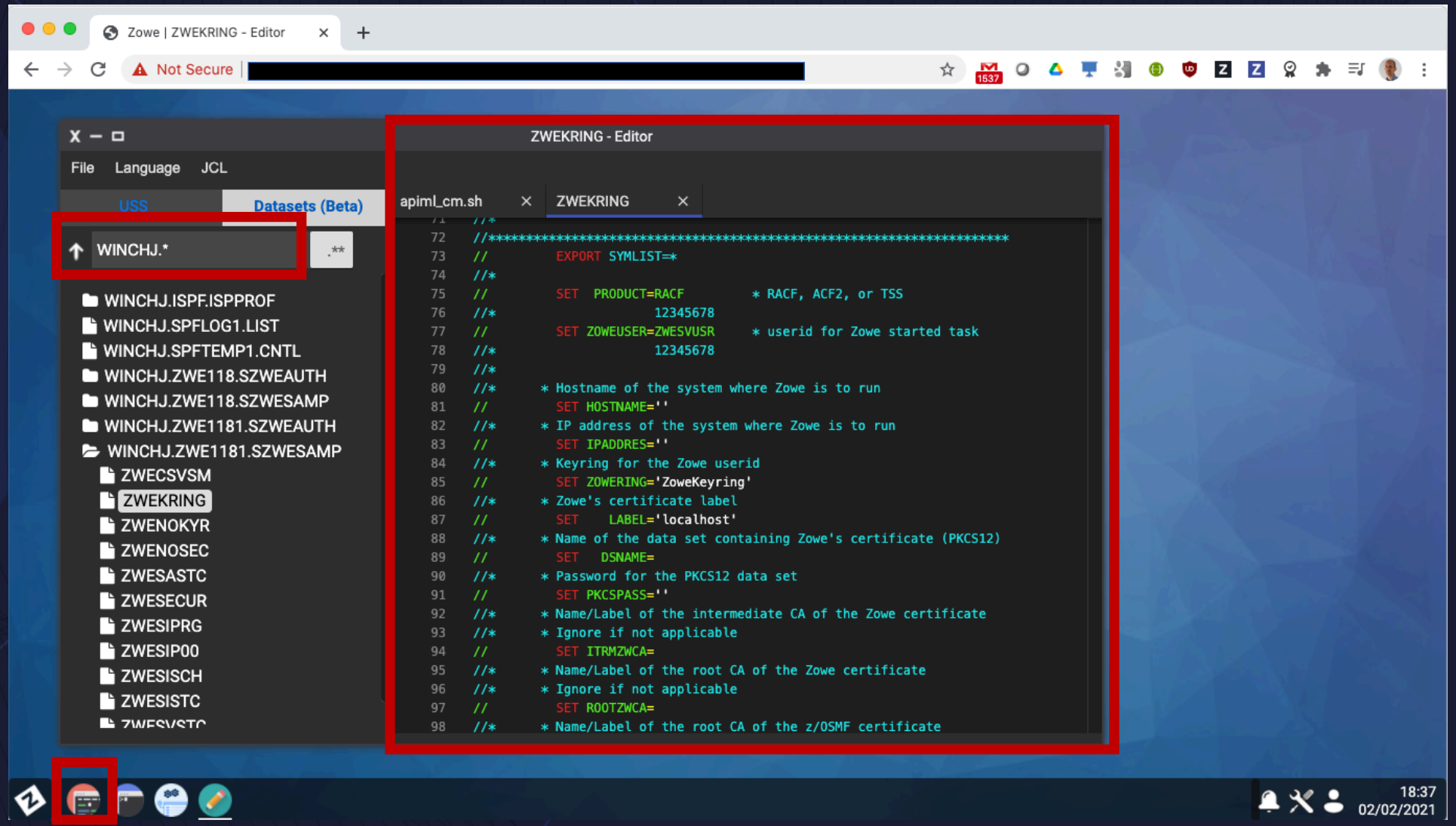
Pop-up menu Cut/Copy/Delete/In place rename



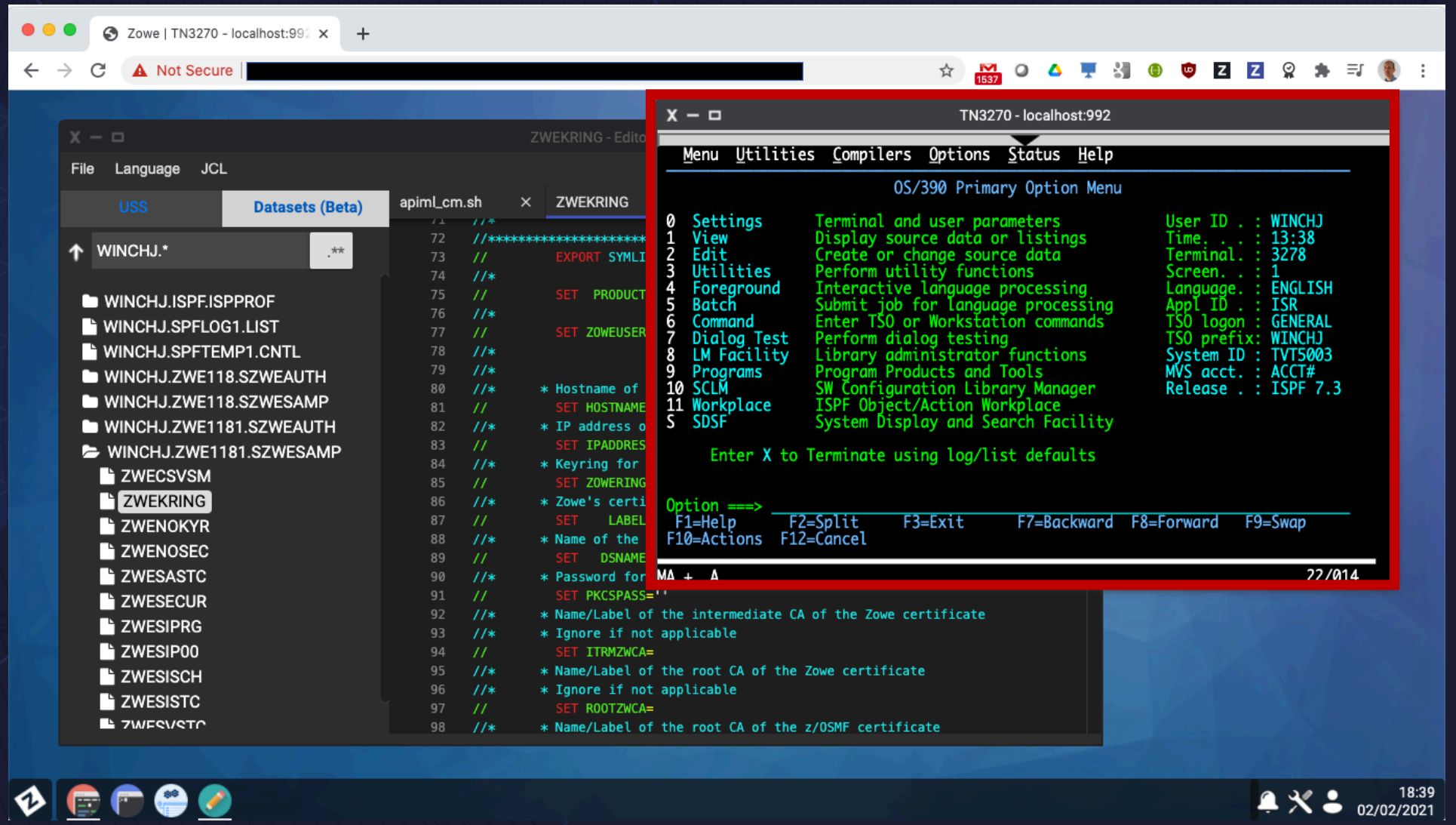
Set file attributes for code page content tagging



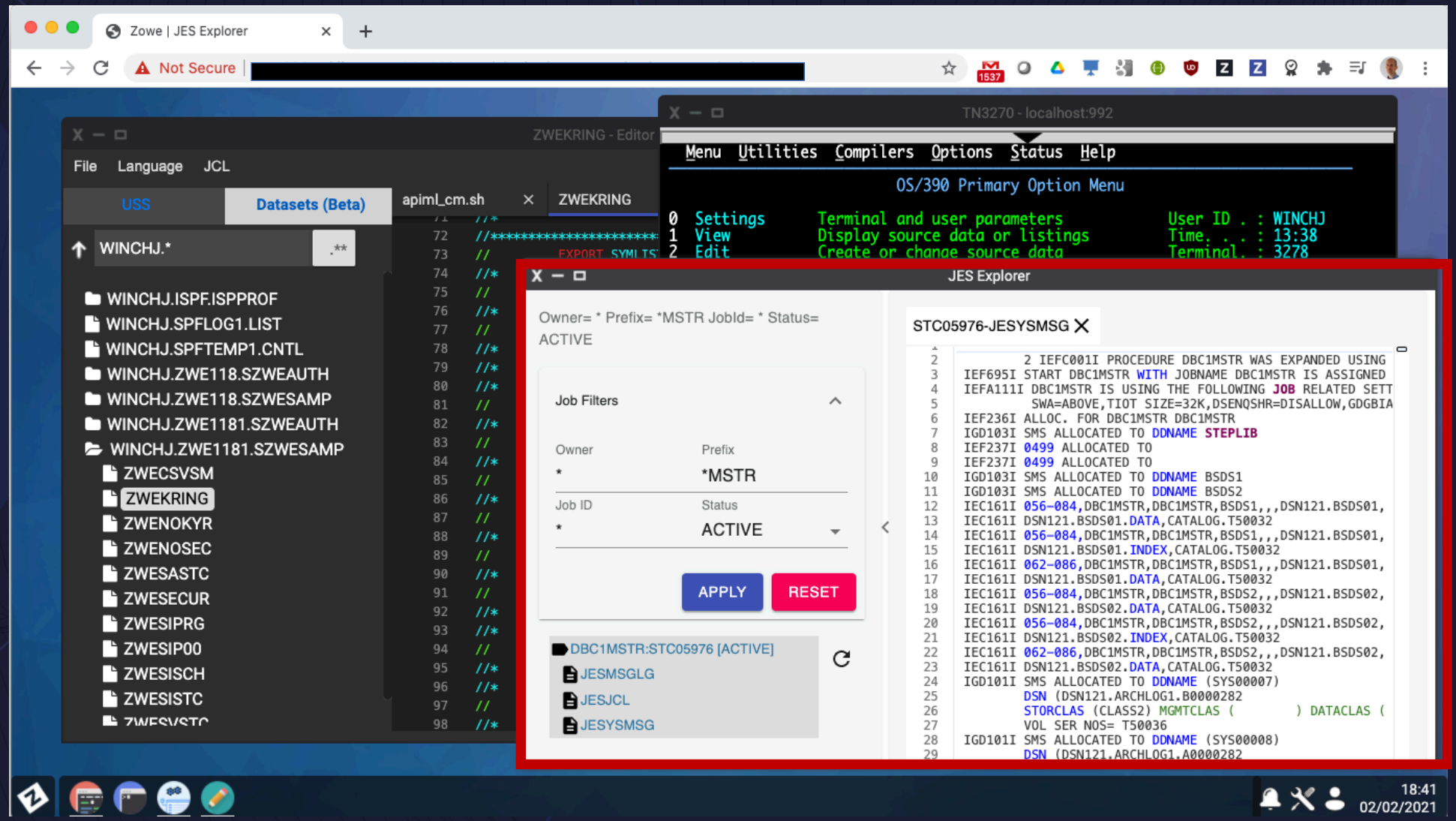
USS navigator as well as Data Sets



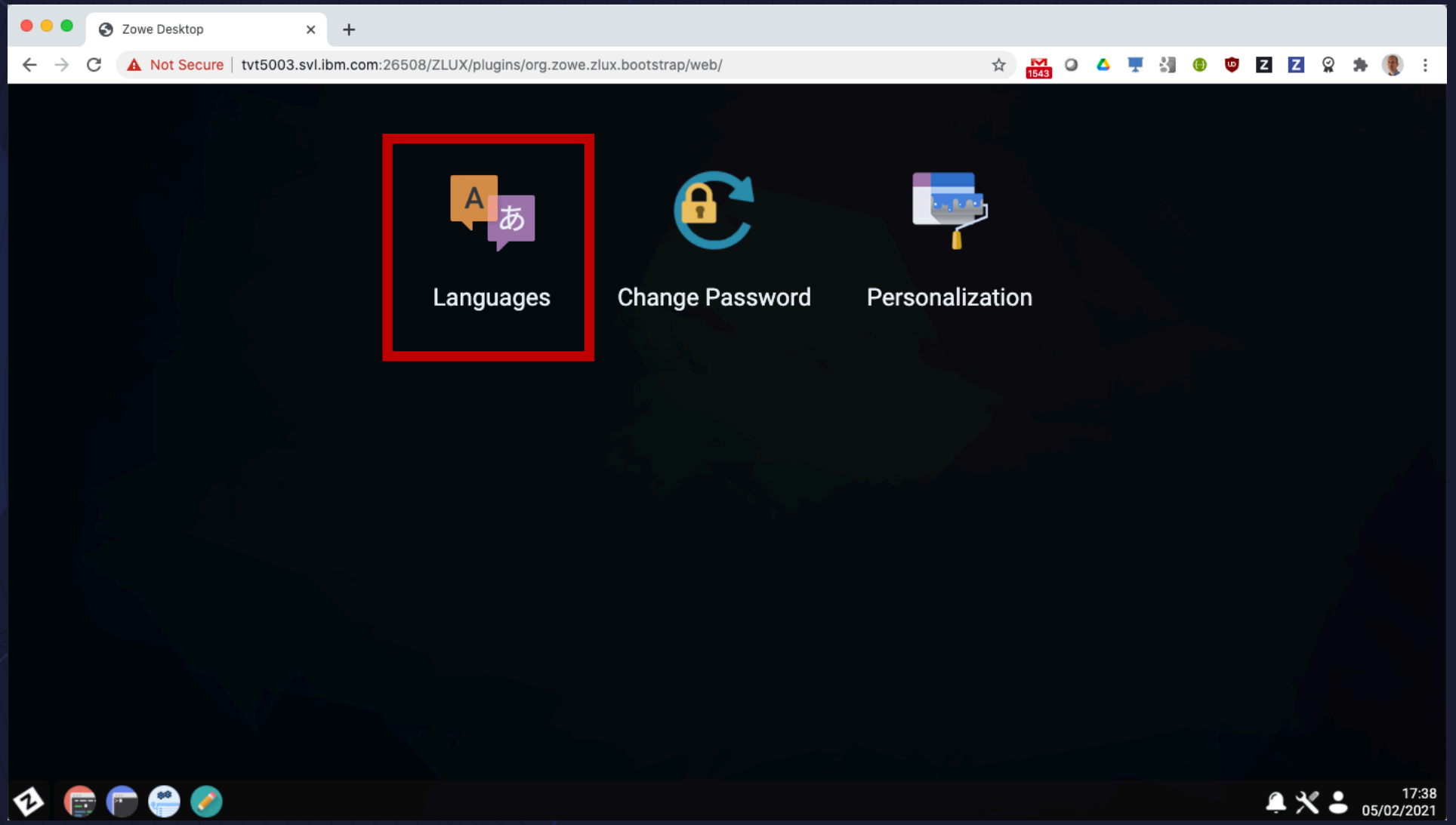
Zowe Desktop includes 3270 emulator



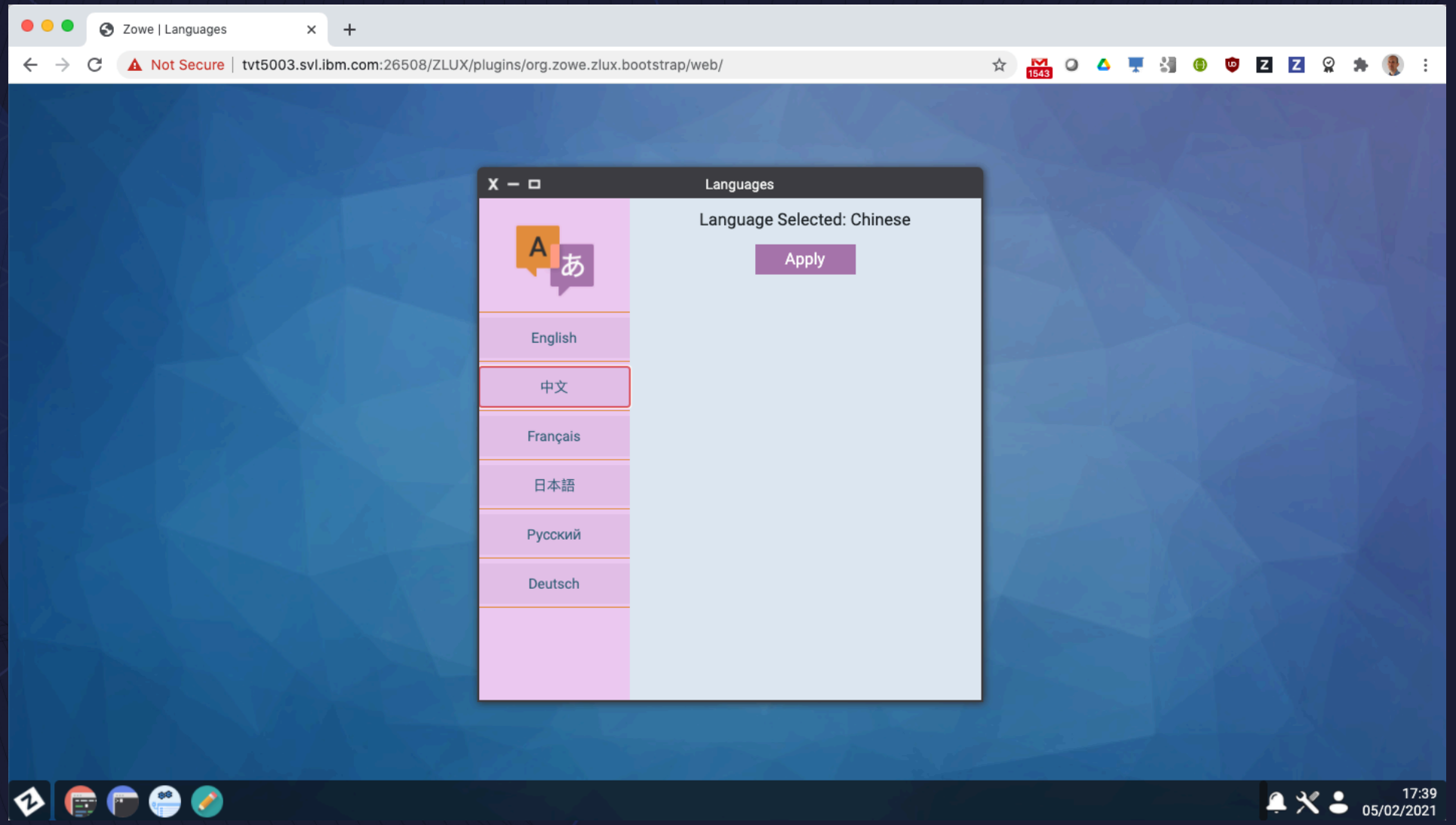
App to app launching – Whole > Sum of parts



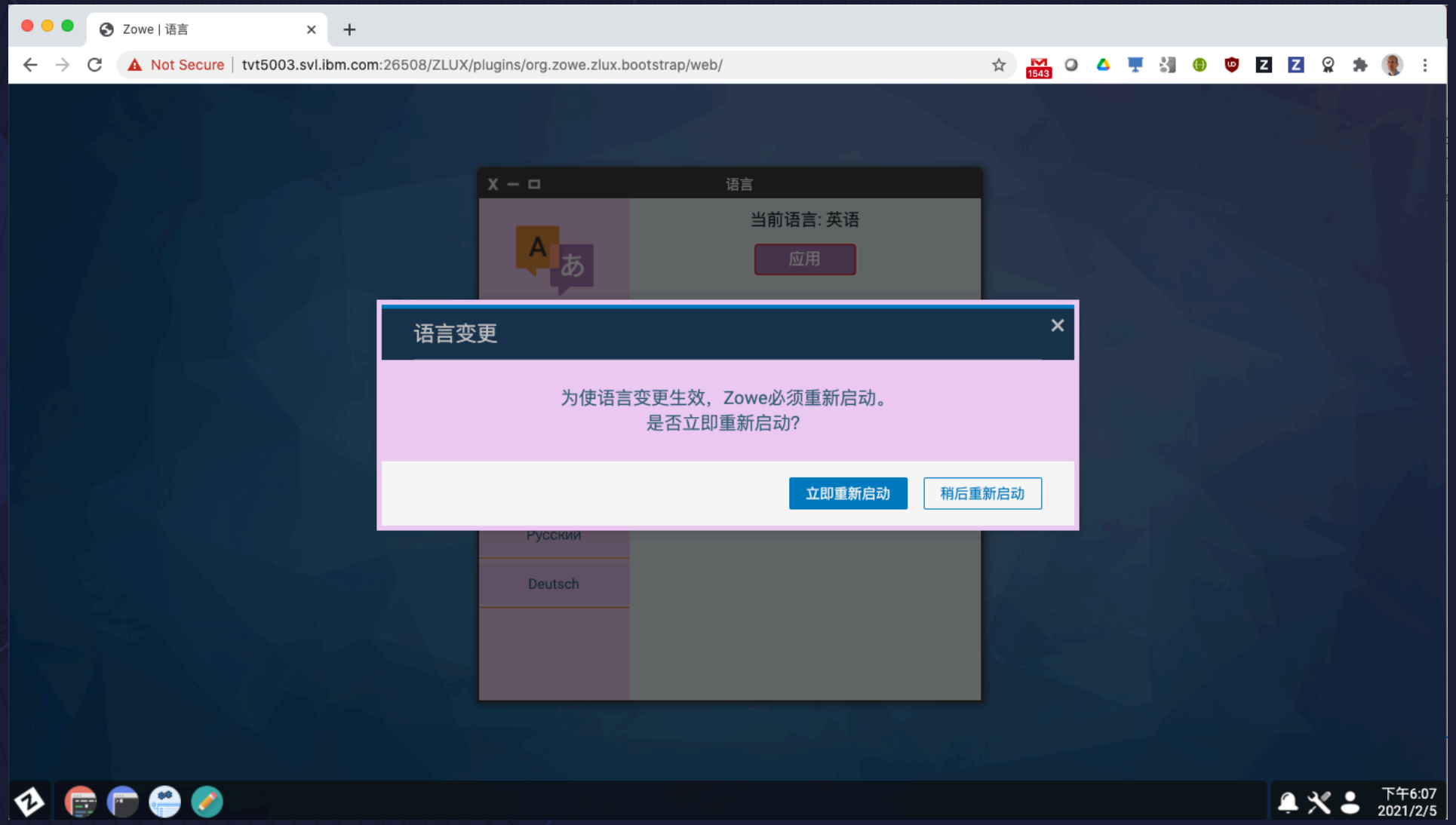
Desktop can have language changed



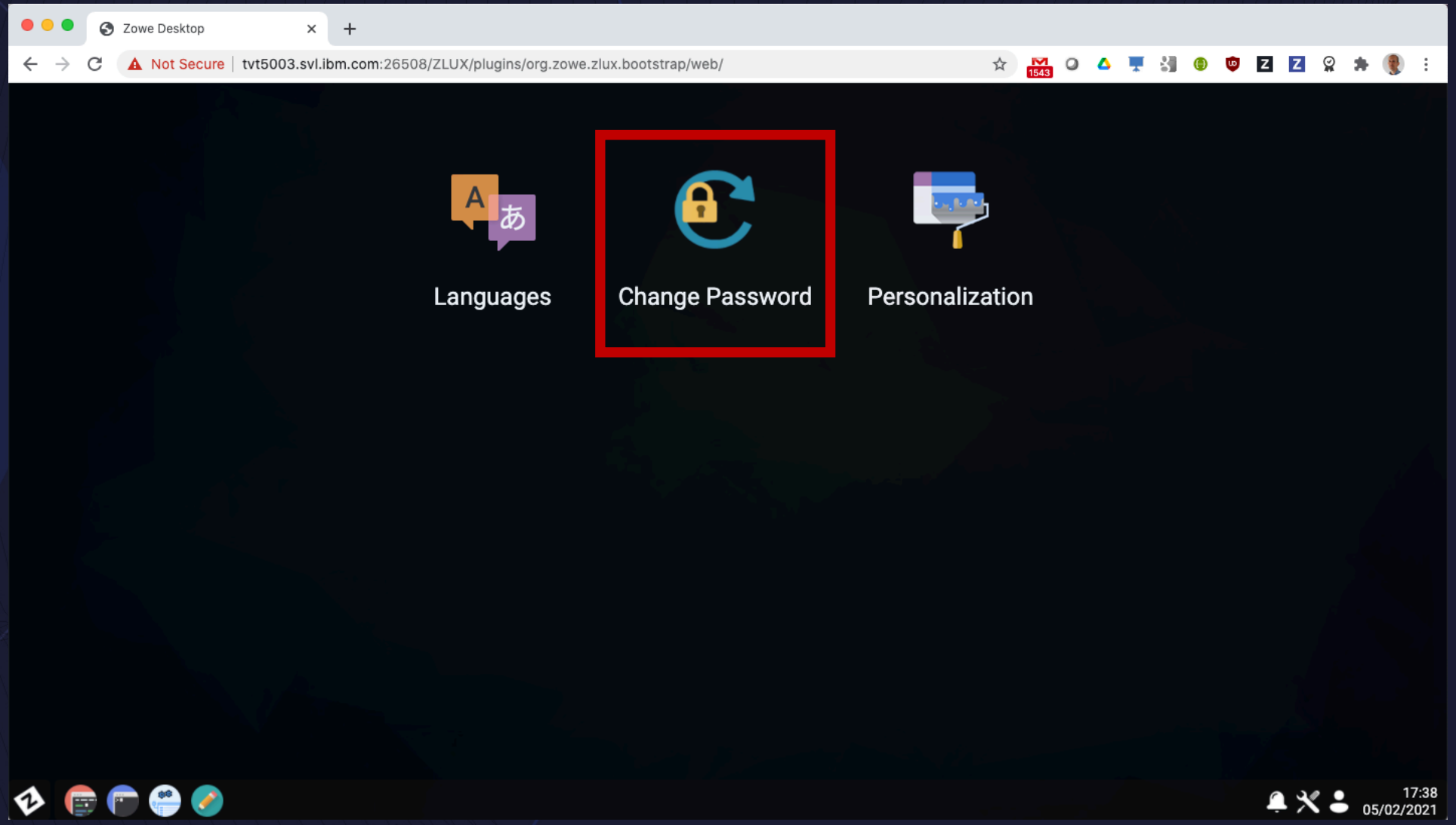
Set to Chinese



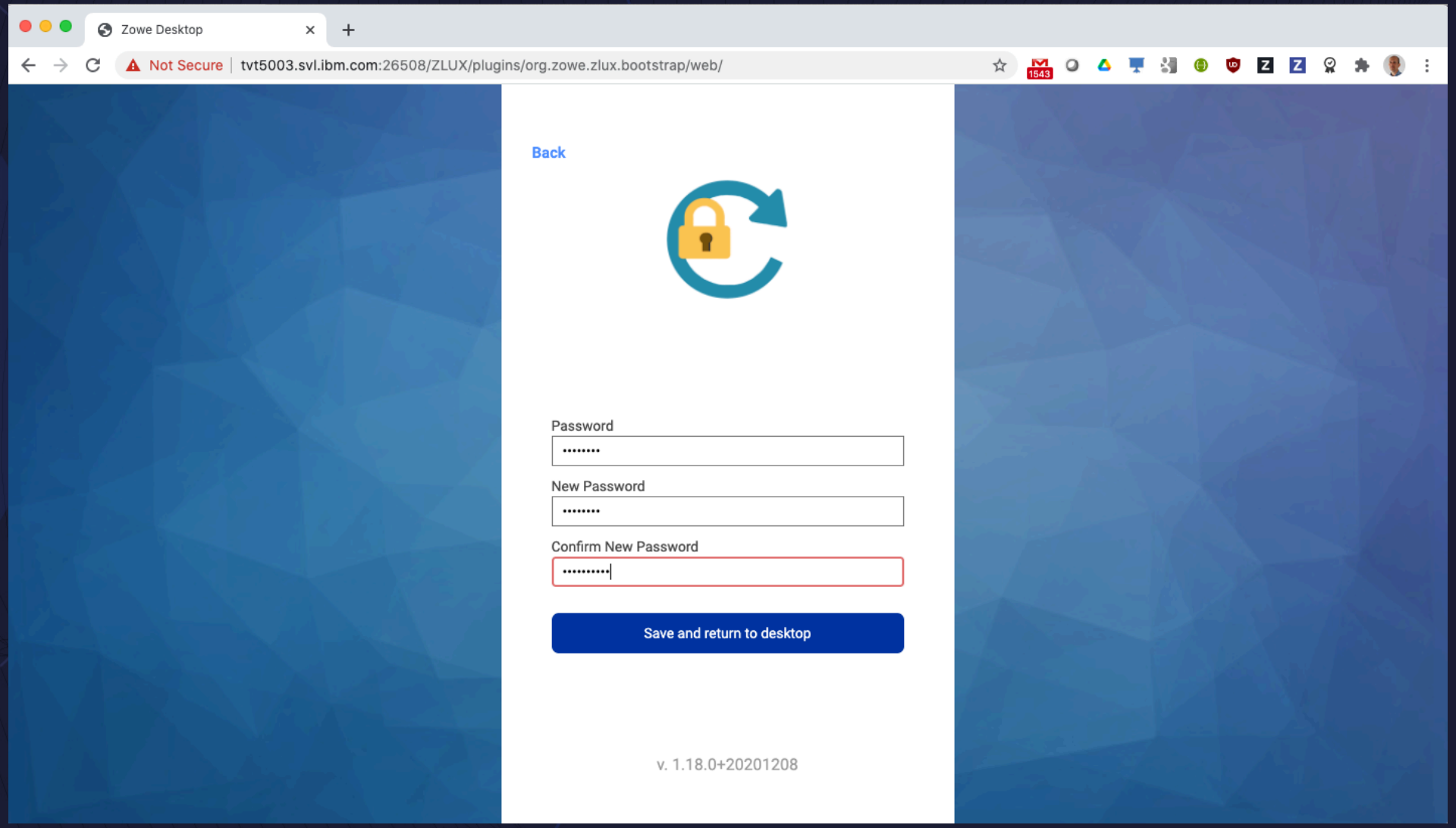
Which works across all apps supporting the locale



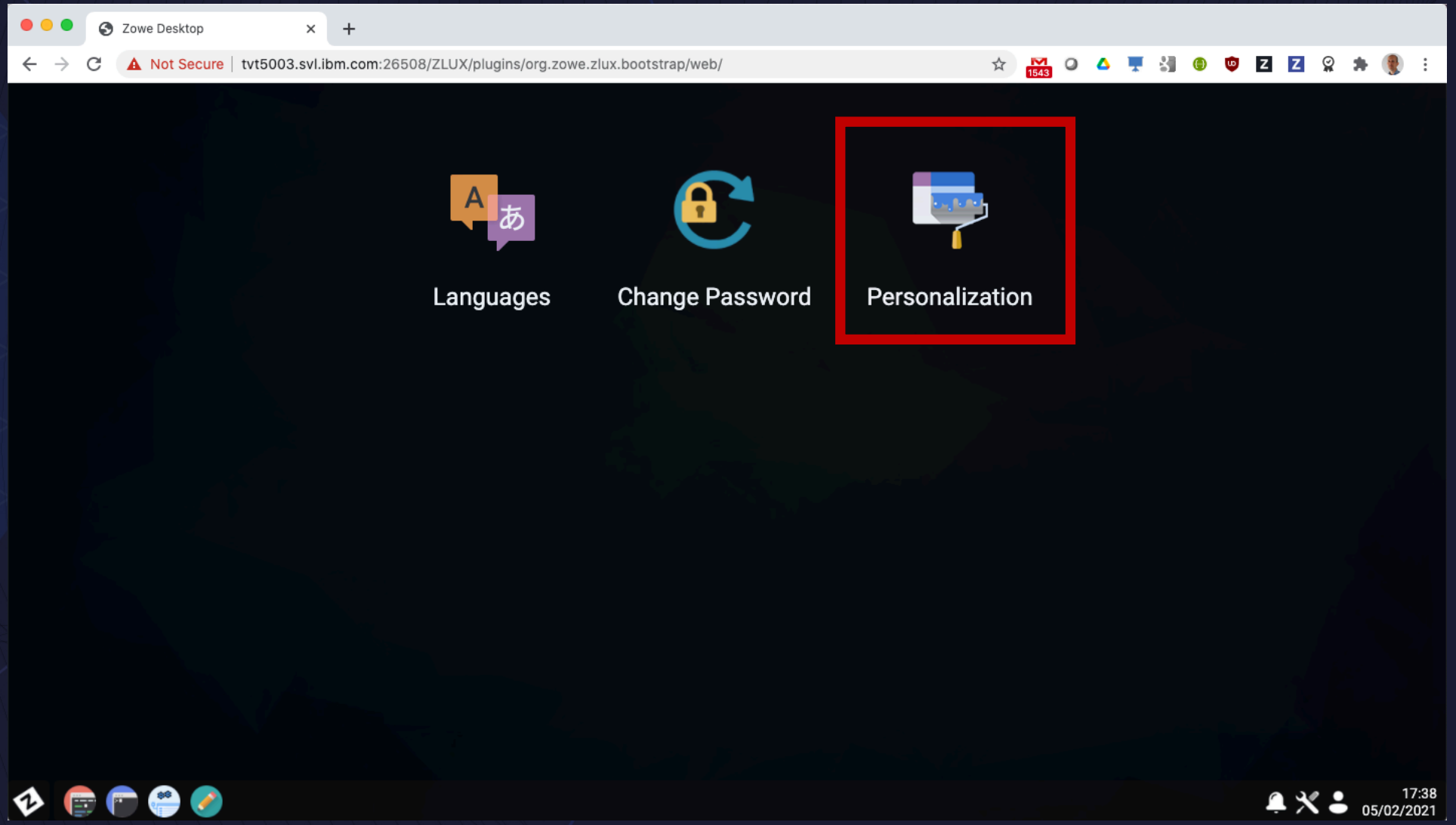
Change TSO password



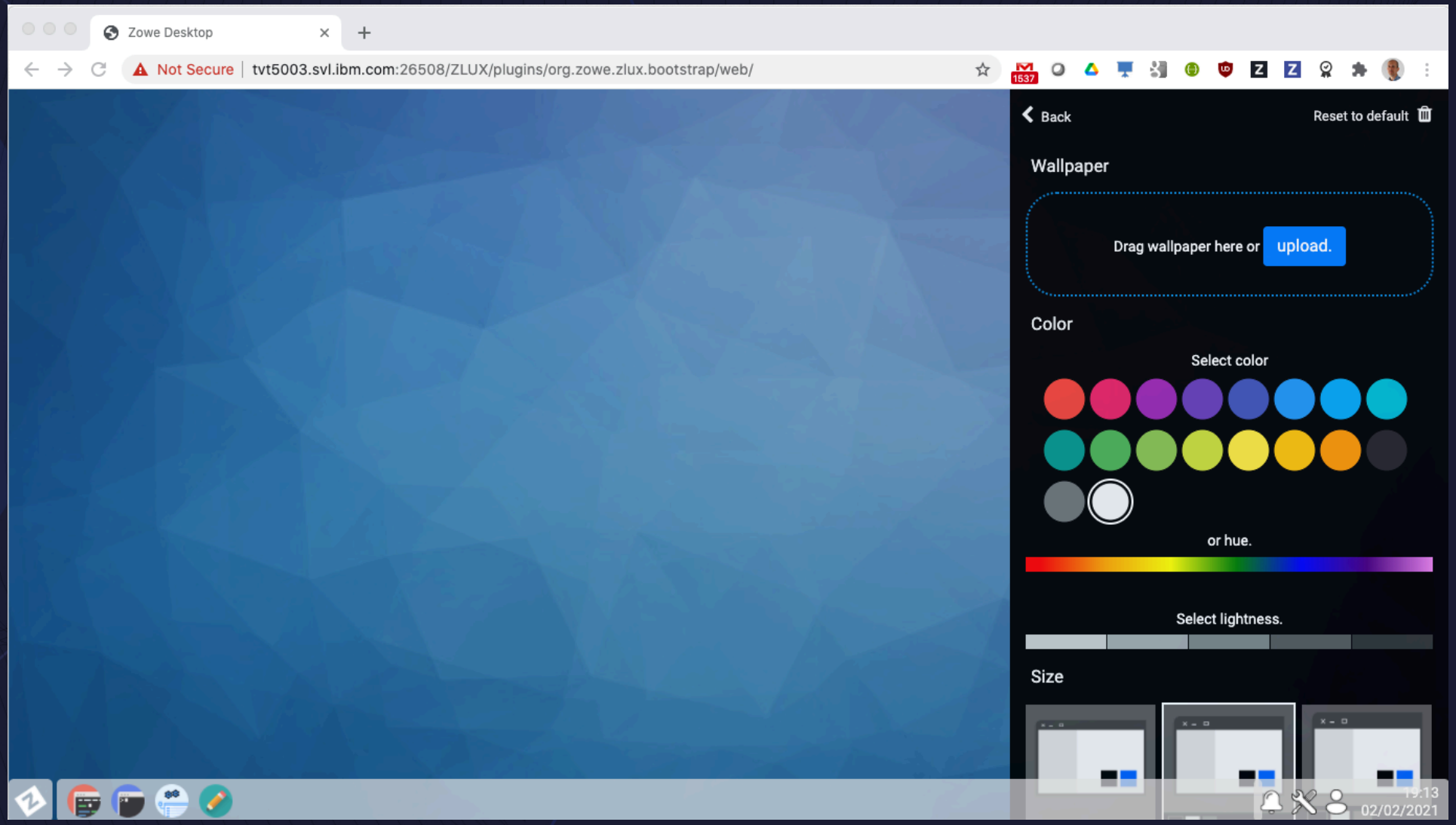
Password change without needing to log into TSO



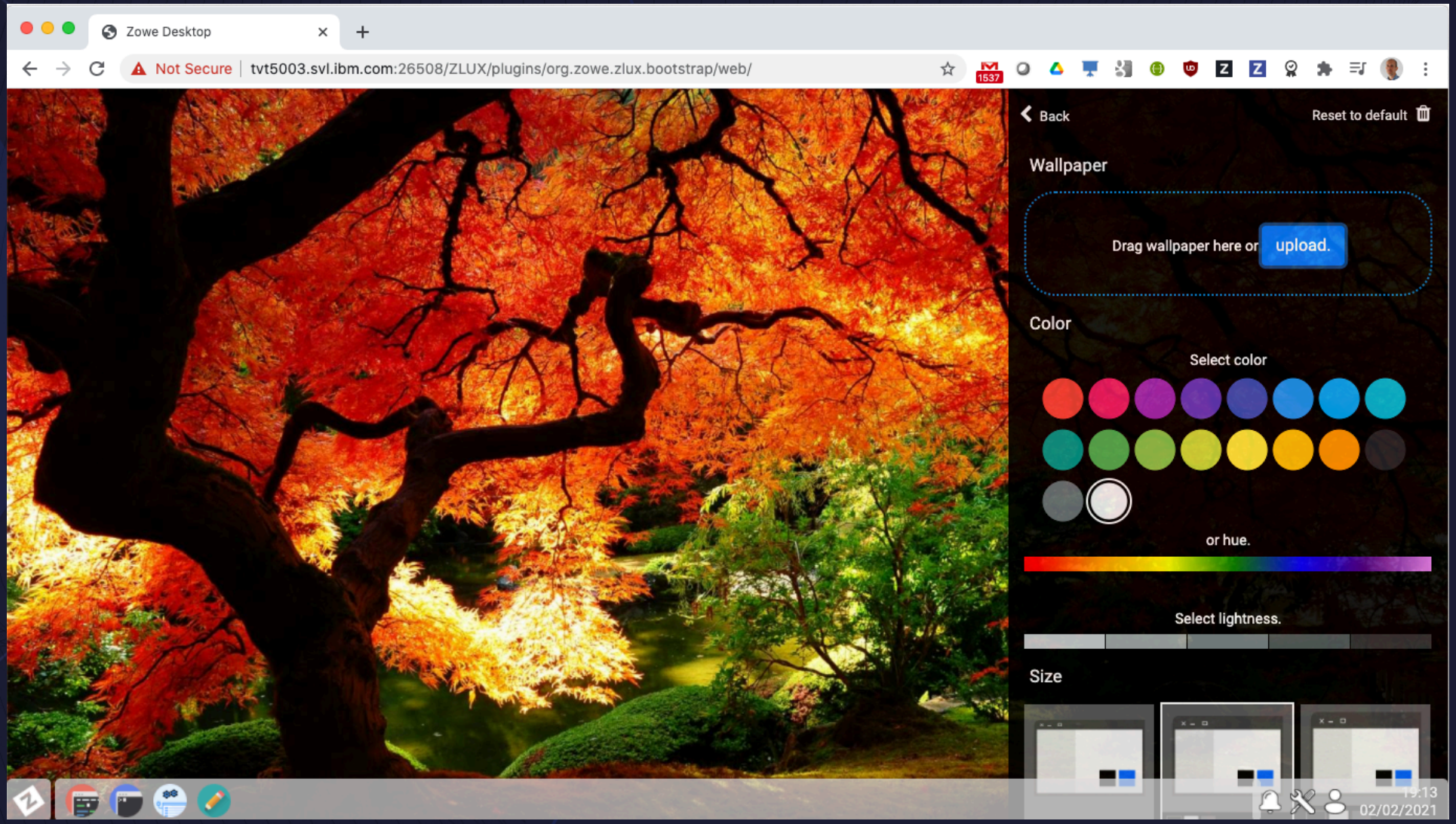
Desktop theme can be personalized

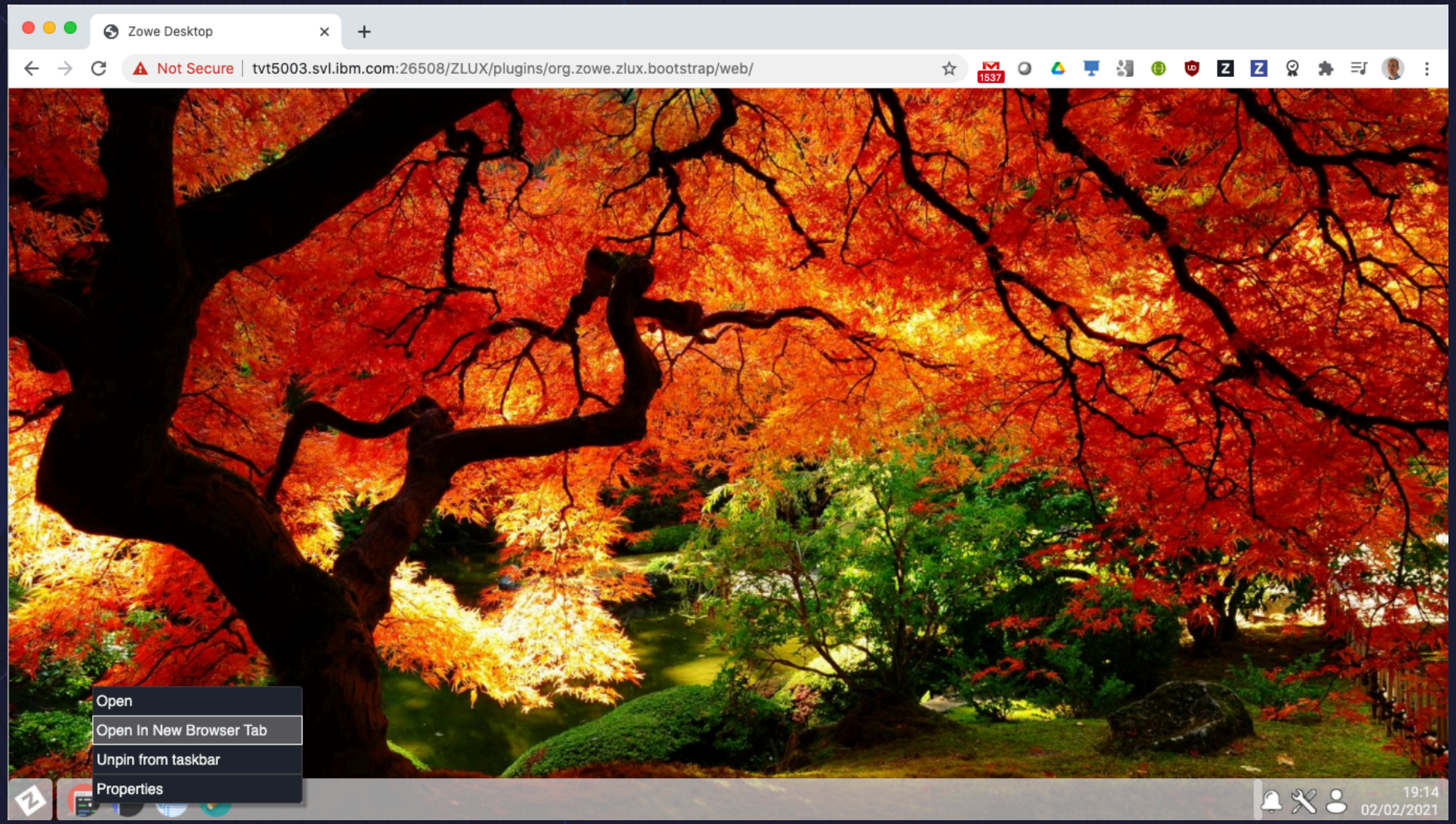


Icon colors and sizes

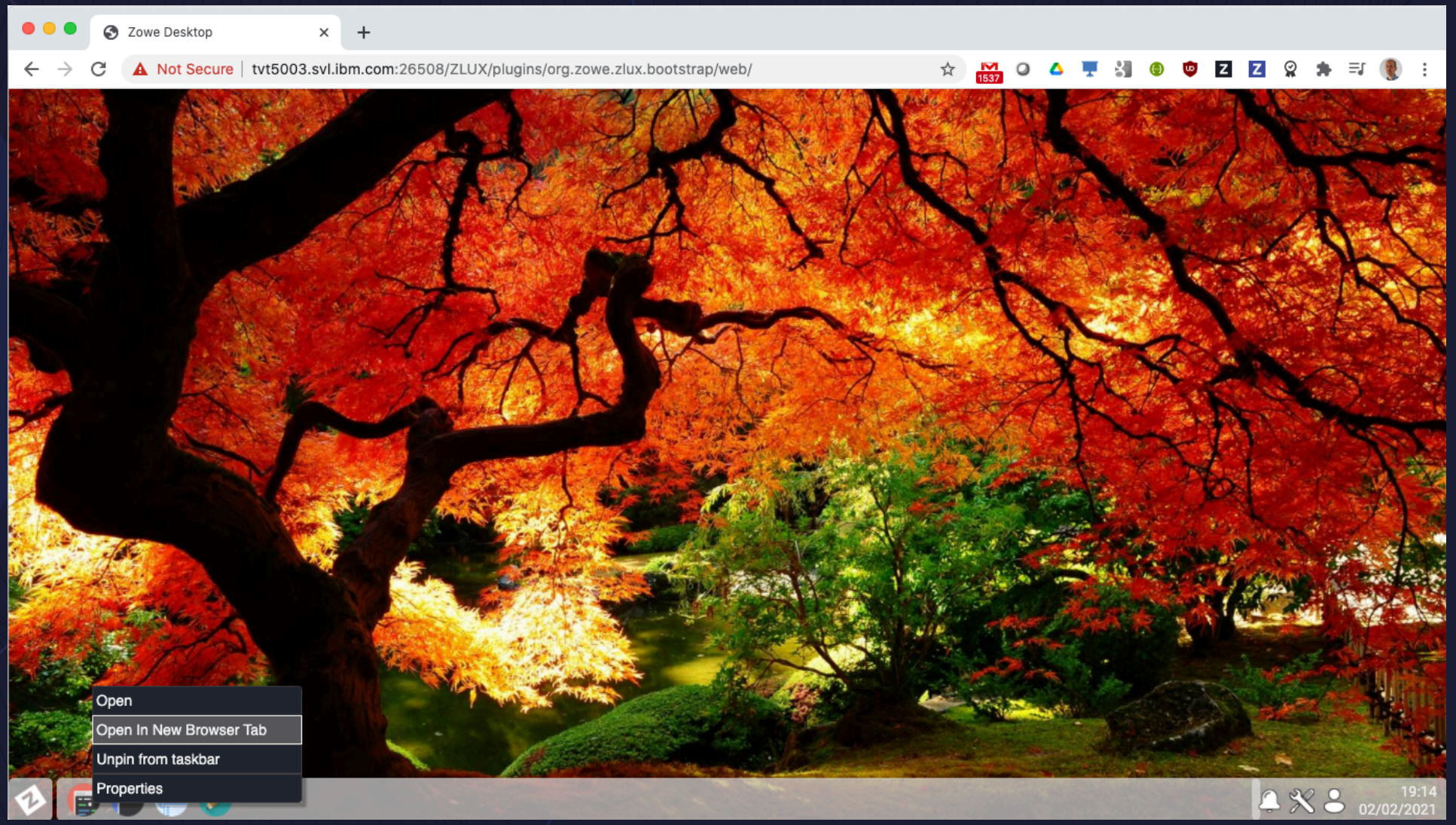


And background can be customized

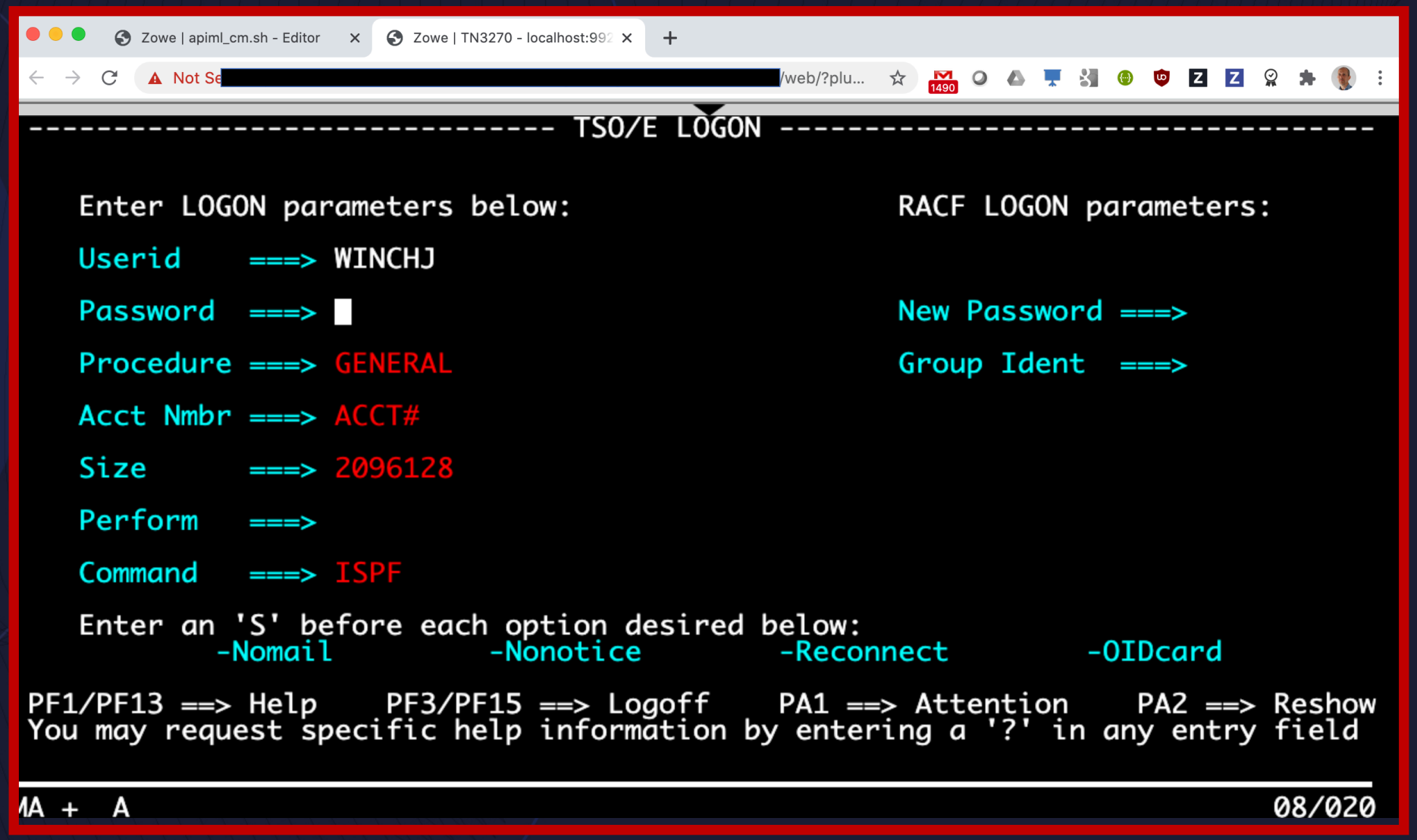



Zowe Desktop
Not Secure
tvt5003.svl.ibm.com:26508/ZLUX/plugins/org.zowe.zlux.bootstrap/web/
Open
Open In New Browser Tab
Unpin from taskbar
Properties
19:14
02/02/2021

Apps can be launched tile in desktop or new browser tab



Great for 3270 emulation with no host emulator client software

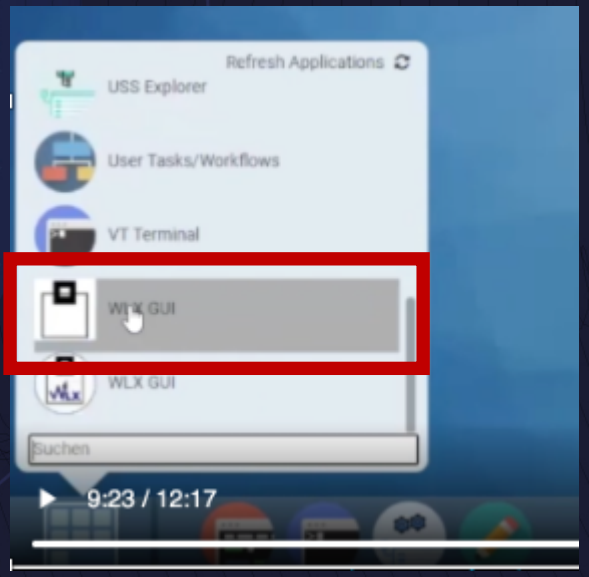


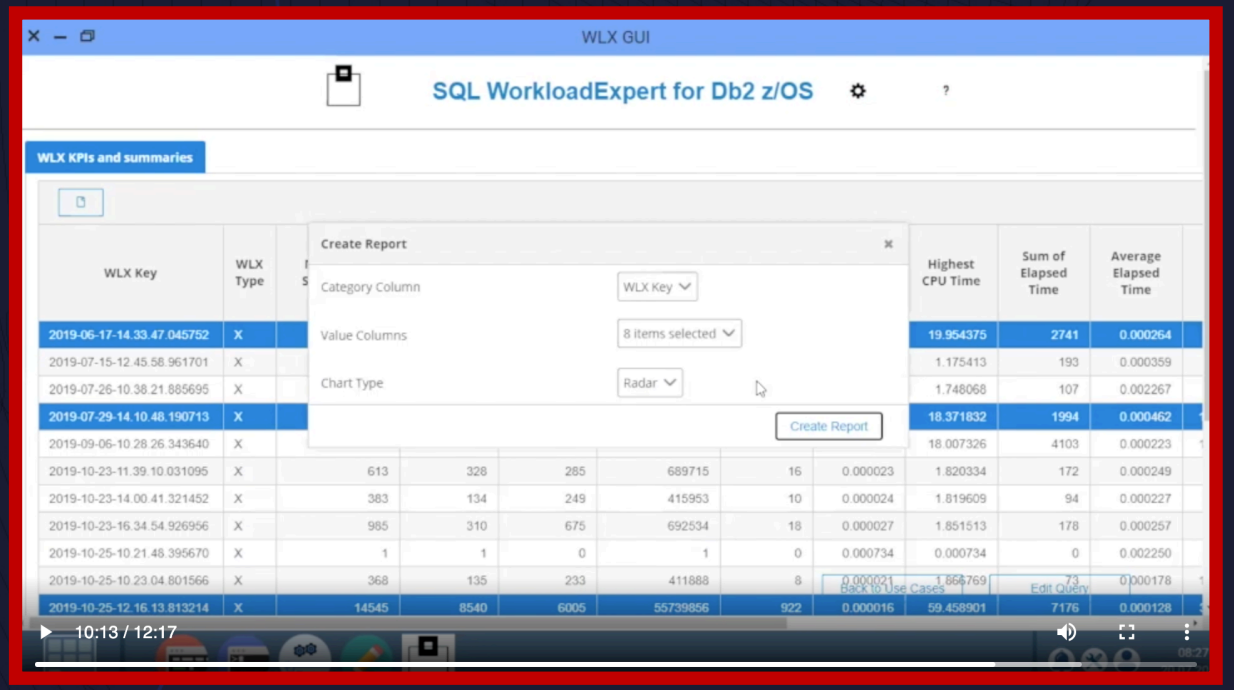
Desktop apps have a conformance program

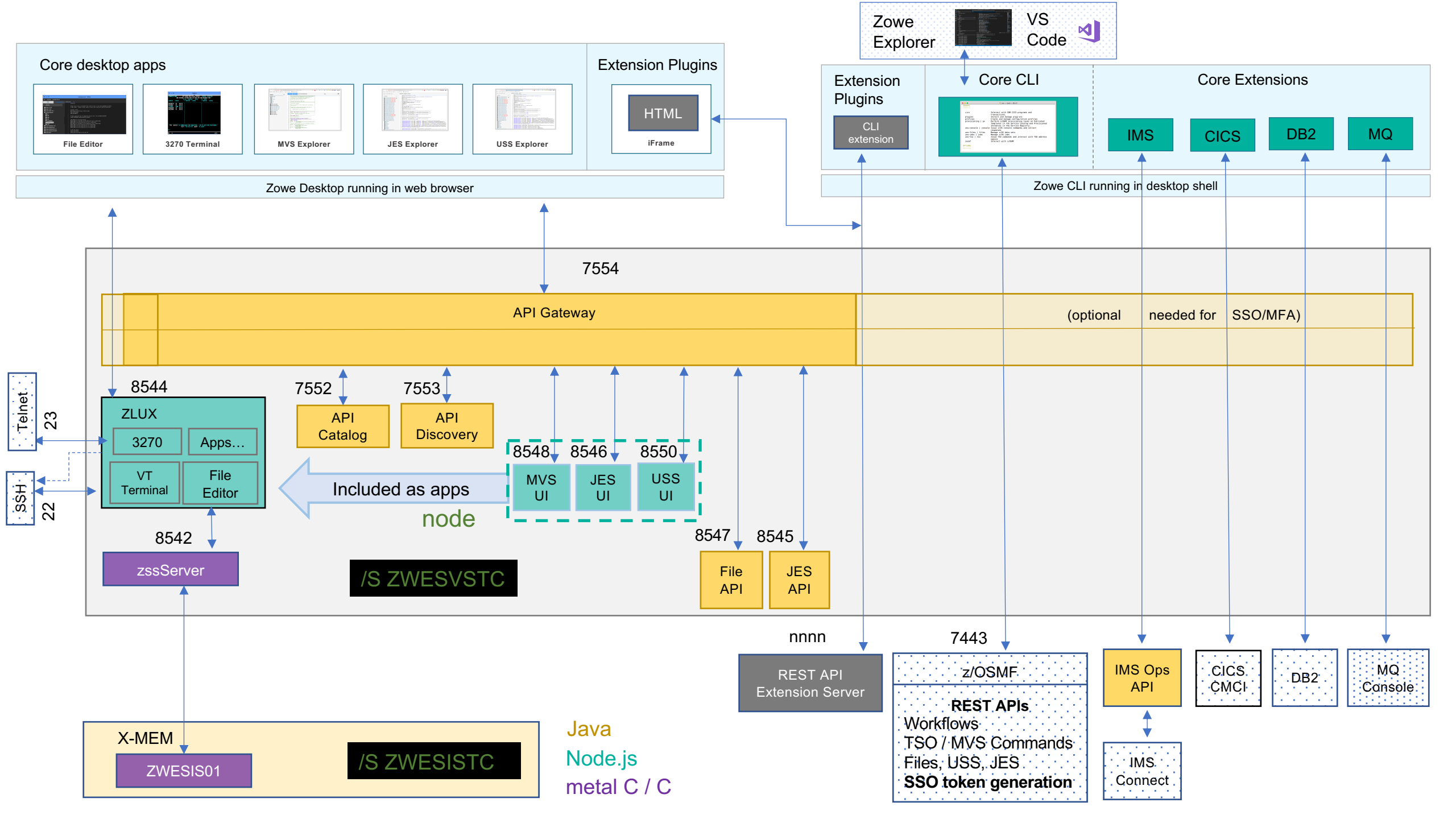
OPEN MAINFRAME PROJECT Zowe Conformant

APP FRAMEWORK - ZOWE V1

Broadcom	IBM	IBM	IBM	Rocket Software	SOFTWARE ENGINEERING
BROADCOM CA Vantage™ Storage Resource Manager	IBM Z Service Management Explorer	Service Management Unite	IBM® Z Netview	Rocket BlueZone Web	SOFTWARE ENGINEERING SQL WorkloadExpert for Db2 z/OS






Zowe Explorer
VS Code
Core desktop apps
File Editor
3270 Terminal
MVS Explorer
JES Explorer
USS Explorer
Extension Plugins
HTML
iFrame
Extension Plugins
CLI extension
Core CLI
Core Extensions
IMS
CICS
DB2
MQ
Zowe Desktop running in web browser
Zowe CLI running in desktop shell
7554
API Gateway
(optional needed for SSO/MFA)
Telnet
23
SSH
22
8544
ZLUX
3270
Apps...
VT Terminal
File Editor
7552
API Catalog
7553
API Discovery
8548
8546
8550
MVS UI
JES UI
USS UI
Included as apps
node
8542
zssServer
/S ZWESVSTC
8547
8545
File API
JES API
nnnn
REST API Extension Server
7443
z/OSMF
REST APIs
Workflows
TSO / MVS Commands
Files, USS, JES
SSO token generation
IMS Ops API
IMS Connect
CICS CMCI
DB2
MQ Console
X-MEM
ZWESIS01
/S ZWESISTC
Java
Node.js
metal C / C

API Routing – Reverse Proxy Edge Server – Netflix Zuul

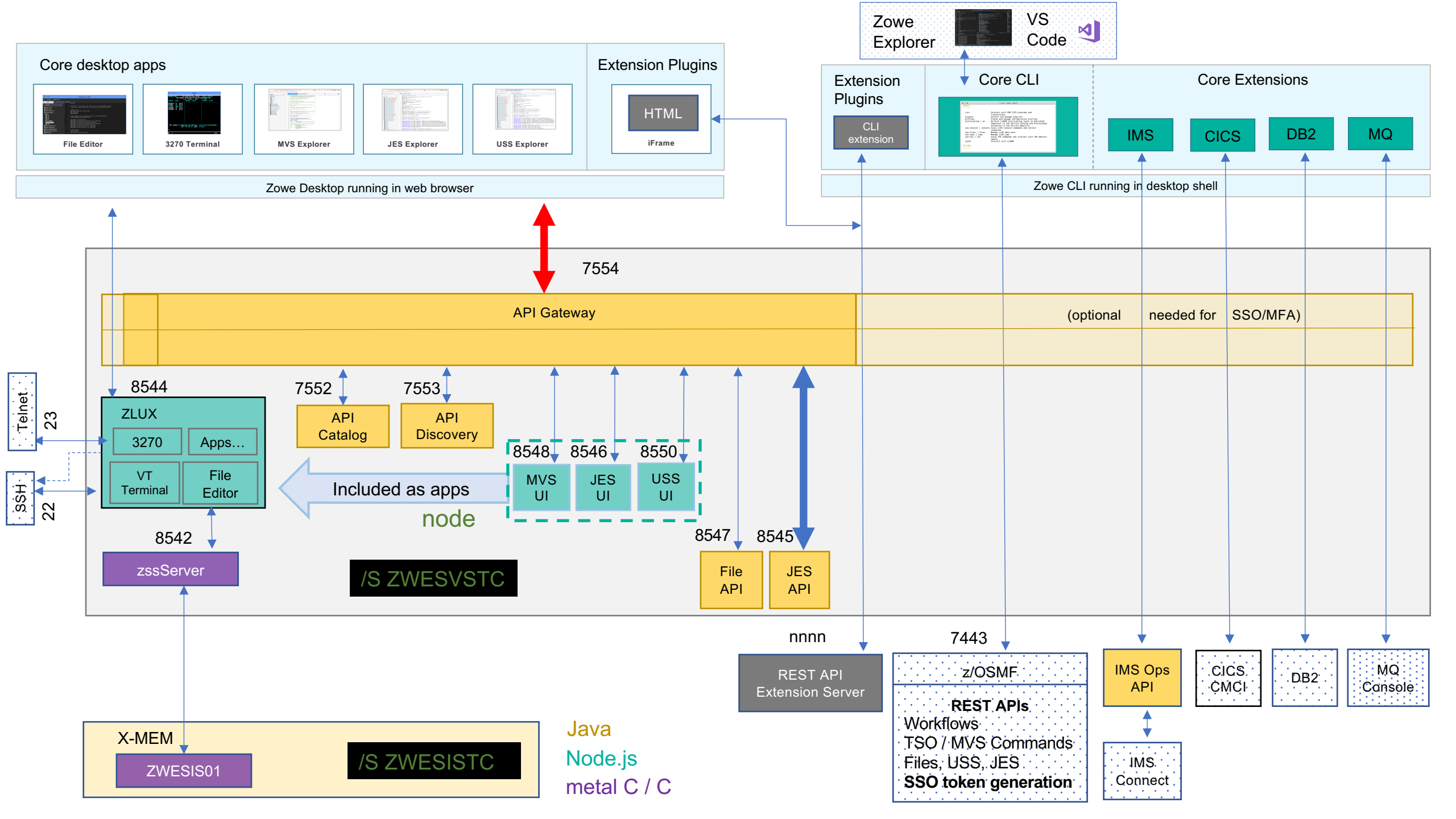
Single sign-on (SSO), Multi Factor Authentication (MFA), x509 client cert auth

API Catalog – Swagger / Open Api

API Balancing – Workload Management of requests

Single Certificate and external IP

High Availability


Zowe Explorer
VS Code
Core desktop apps
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3270 Terminal
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Extension Plugins
CLI extension
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API Gateway
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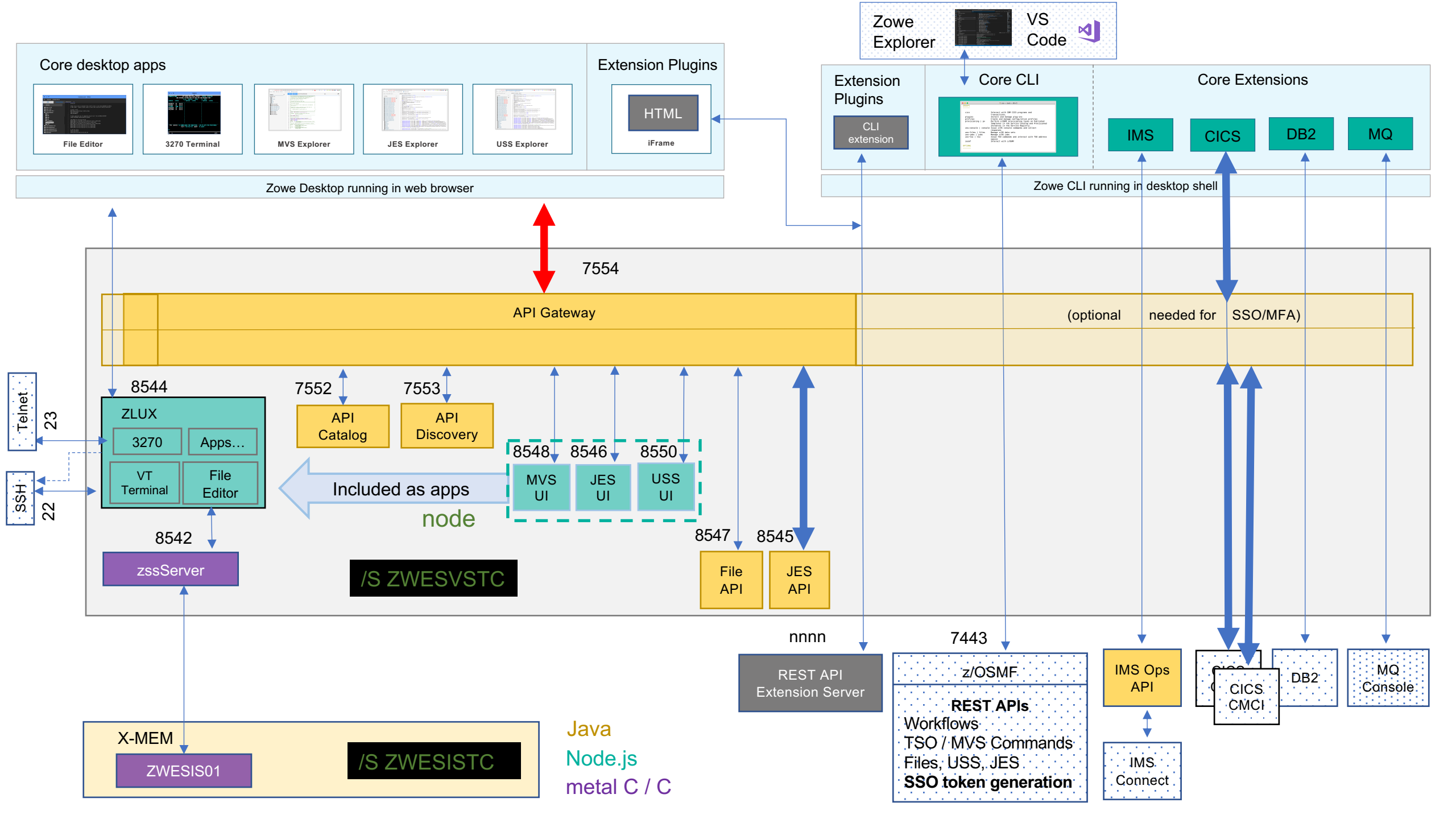
IMS Connect
CICS CMCI
DB2
MQ Console
X-MEM
ZWESIS01
/S ZWESISTC
Java
Node.js
metal C / C


Zowe Explorer
VS Code
Core desktop apps
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3270 Terminal
MVS Explorer
JES Explorer
USS Explorer
Extension Plugins
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iFrame
Extension Plugins
CLI extension
Core CLI
Core Extensions
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CICS
DB2
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API Gateway
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Apps...
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node
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zssServer
/S ZWESVSTC
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File API
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nnnn
REST API Extension Server
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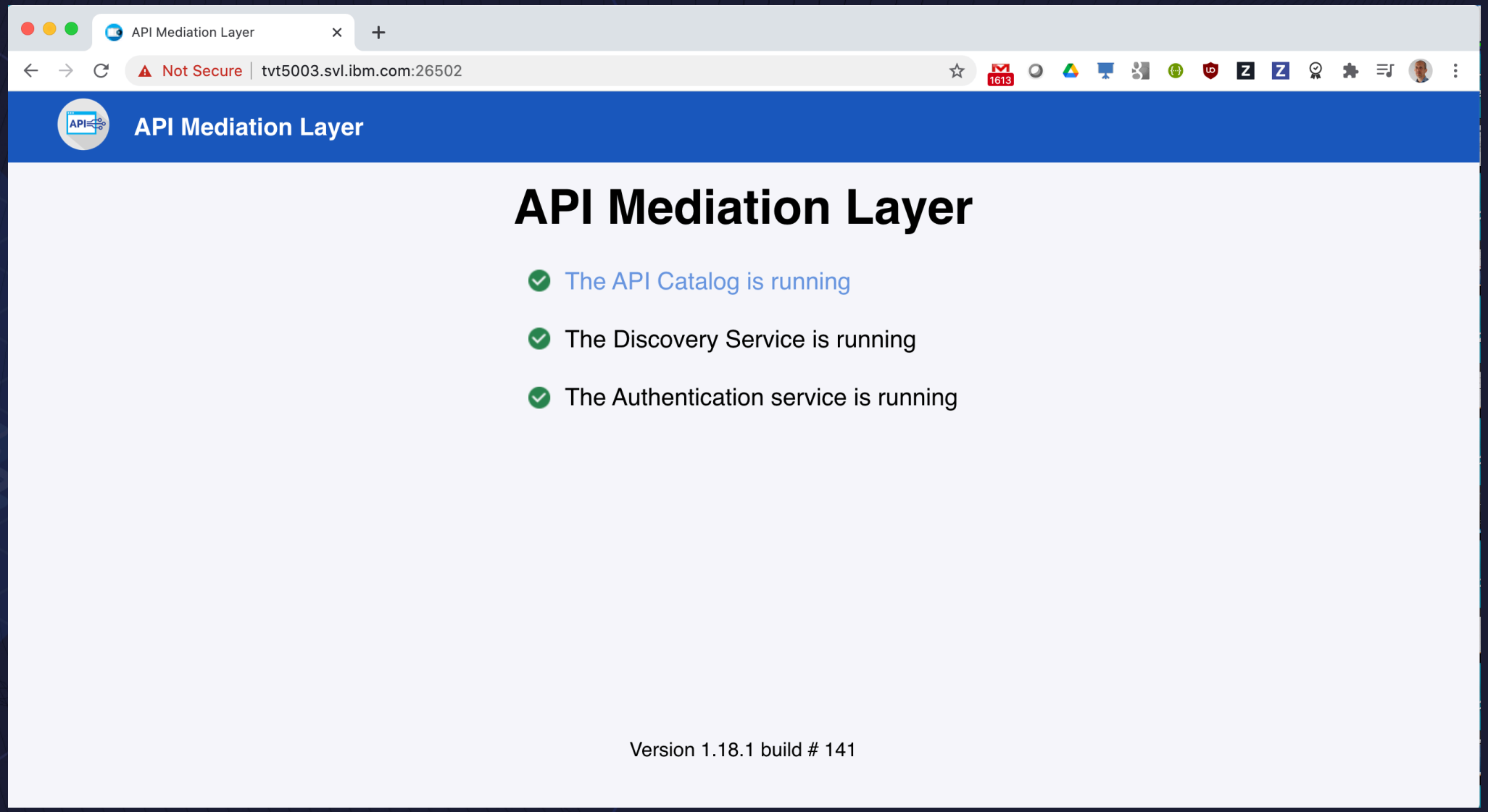
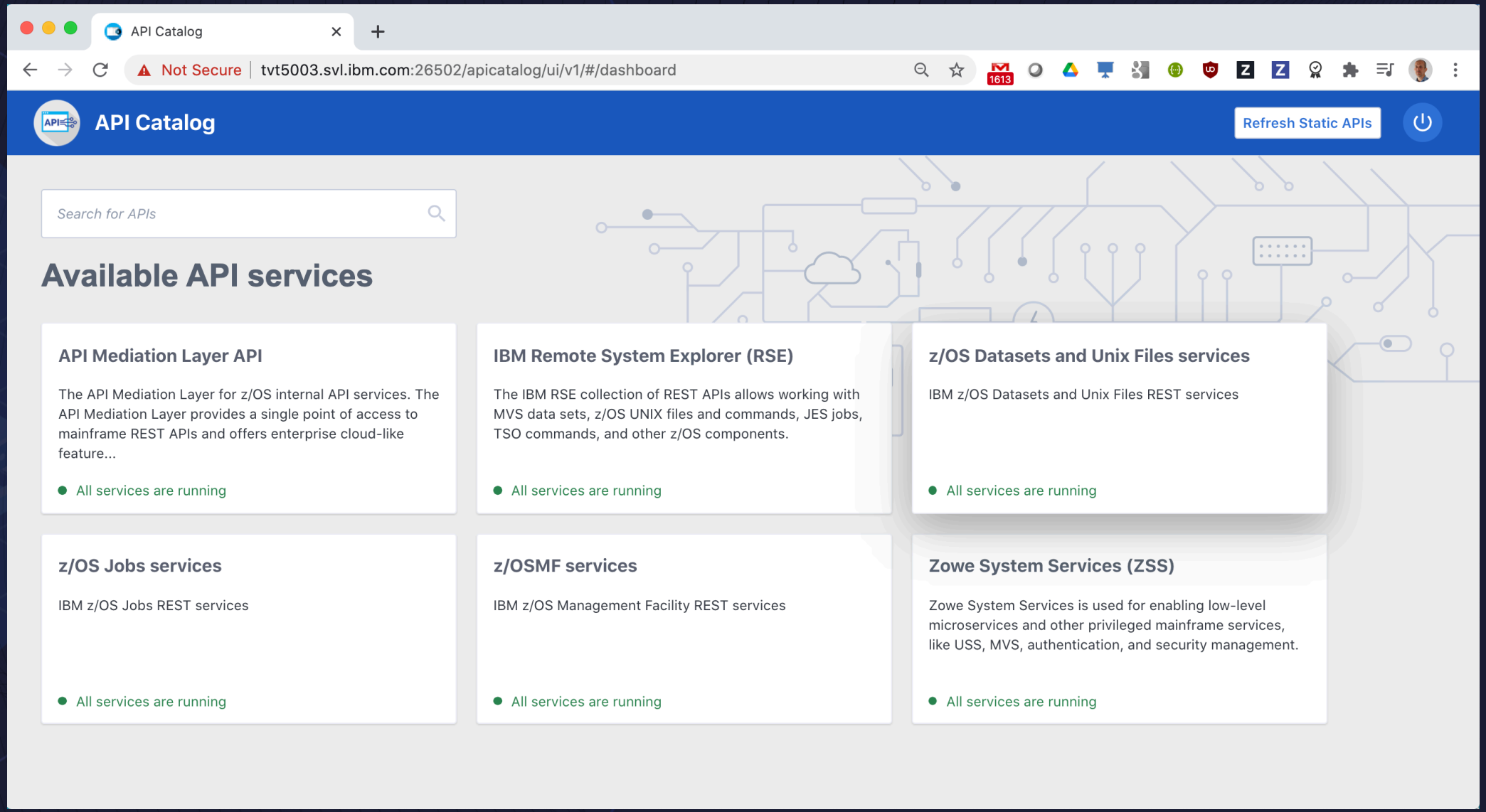
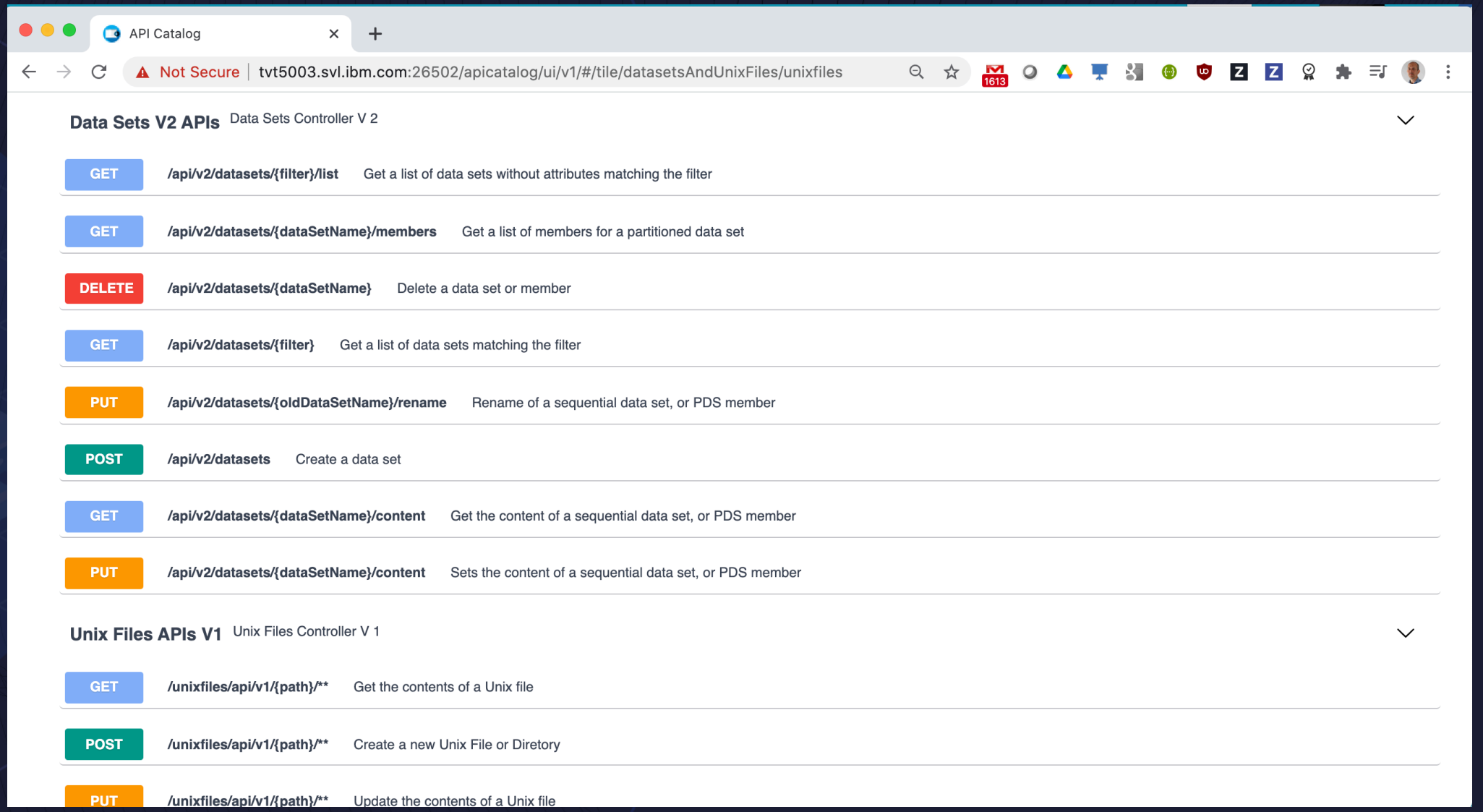
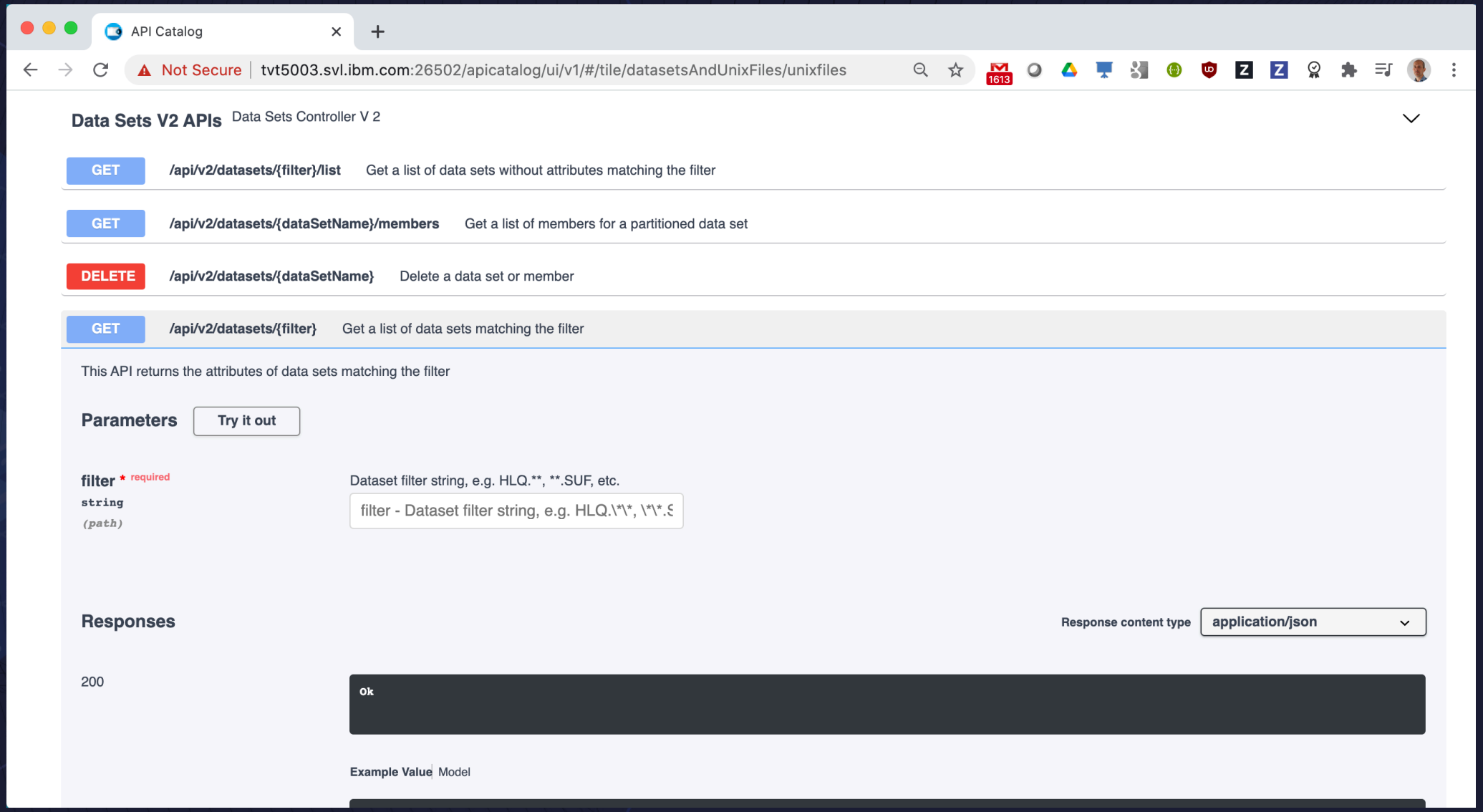
Workflows
TSO / MVS Commands
Files, USS, JES
SSO token generation
IMS Ops API
IMS Connect
CICS CMCI
DB2
MQ Console
X-MEM
ZWESIS01
/S ZWESISTC
Java
Node.js
metal C / C

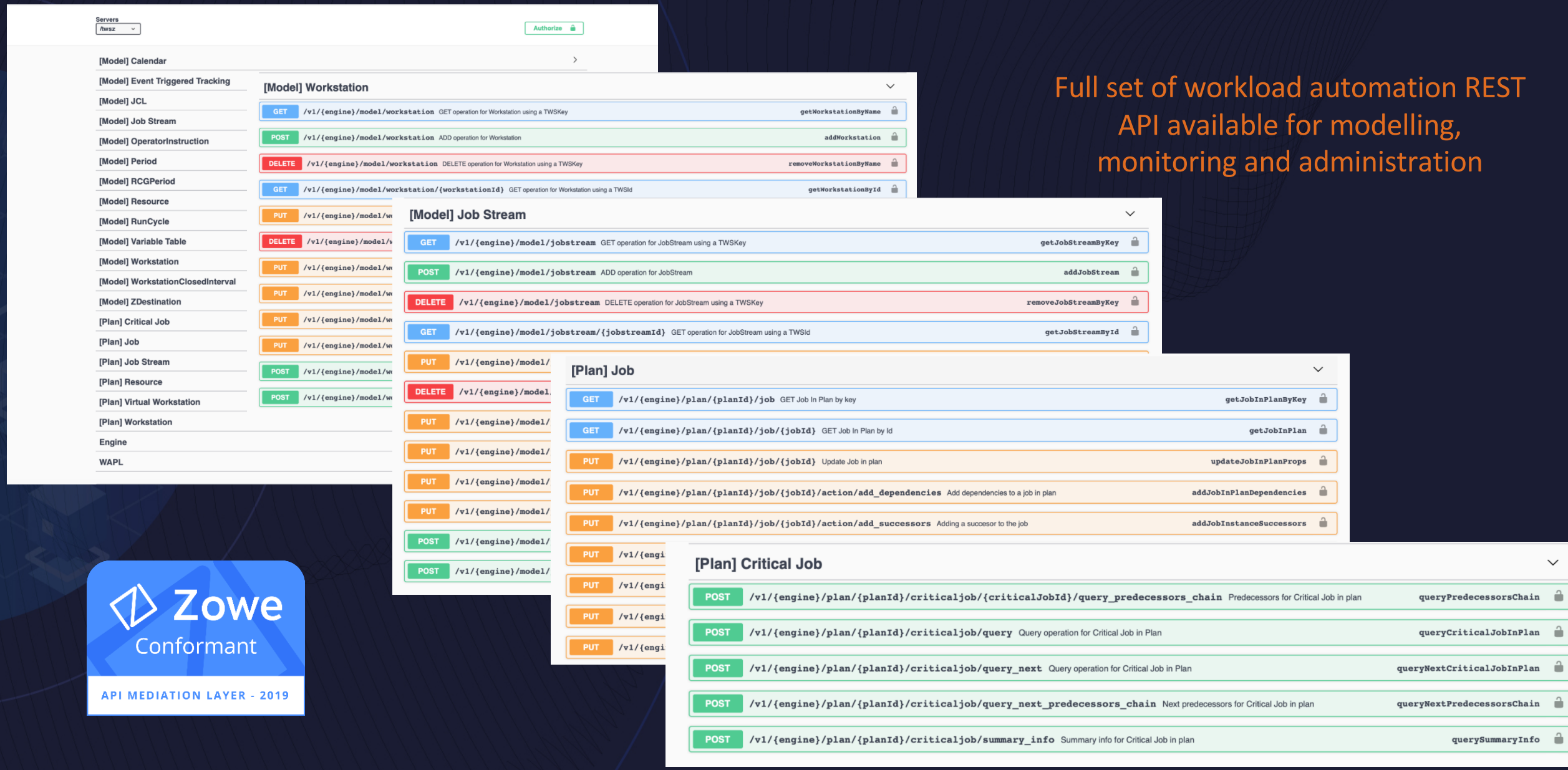

API Mediation Layer
Not Secure
tvt5003.svl.ibm.com:26502
API Mediation Layer
API Mediation Layer
The API Catalog is running
The Discovery Service is running
The Authentication service is running
Version 1.18.1 build # 141


API Catalog
Not Secure
tvt5003.svl.ibm.com:26502/apicatalog/ui/v1/#/dashboard
API Catalog
Refresh Static APIs
Search for APIs
Available API services
API Mediation Layer API
The API Mediation Layer for z/OS internal API services. The API Mediation Layer provides a single point of access to mainframe REST APIs and offers enterprise cloud-like feature...
All services are running
IBM Remote System Explorer (RSE)
The IBM RSE collection of REST APIs allows working with MVS data sets, z/OS UNIX files and commands, JES jobs, TSO commands, and other z/OS components.
All services are running
z/OS Datasets and Unix Files services
IBM z/OS Datasets and Unix Files REST services
All services are running
z/OS Jobs services
IBM z/OS Jobs REST services
All services are running
z/OSMF services
IBM z/OS Management Facility REST services
All services are running
Zowe System Services (ZSS)
Zowe System Services is used for enabling low-level microservices and other privileged mainframe services, like USS, MVS, authentication, and security management.
All services are running


API Catalog
Not Secure
tvt5003.svl.ibm.com:26502/apicatalog/ui/v1/#/tile/datasetsAndUnixFiles/unixfiles
Data Sets V2 APIs
Data Sets Controller V 2
GET /api/v2/datasets/{filter}/list Get a list of data sets without attributes matching the filter
GET /api/v2/datasets/{dataSetName}/members Get a list of members for a partitioned data set
DELETE /api/v2/datasets/{dataSetName} Delete a data set or member
GET /api/v2/datasets/{filter} Get a list of data sets matching the filter
PUT /api/v2/datasets/{oldDataSetName}/rename Rename of a sequential data set, or PDS member
POST /api/v2/datasets Create a data set
GET /api/v2/datasets/{dataSetName}/content Get the content of a sequential data set, or PDS member
PUT /api/v2/datasets/{dataSetName}/content Sets the content of a sequential data set, or PDS member
Unix Files APIs V1
Unix Files Controller V 1
GET /unixfiles/api/v1/{path}/** Get the contents of a Unix file
POST /unixfiles/api/v1/{path}/** Create a new Unix File or Diretory
PUT /unixfiles/api/v1/{path}/** Update the contents of a Unix file


API Catalog
Not Secure
tvt5003.svl.ibm.com:26502/apicatalog/ui/v1/#/tile/datasetsAndUnixFiles/unixfiles
Data Sets V2 APIs
Data Sets Controller V 2
GET
/api/v2/datasets/{filter}/list
Get a list of data sets without attributes matching the filter
GET
/api/v2/datasets/{dataSetName}/members
Get a list of members for a partitioned data set
DELETE
/api/v2/datasets/{dataSetName}
Delete a data set or member
GET
/api/v2/datasets/{filter}
Get a list of data sets matching the filter
This API returns the attributes of data sets matching the filter
Parameters
Try it out
filter * required
string
(path)
Dataset filter string, e.g. HLQ.**, **.SUF, etc.
filter - Dataset filter string, e.g. HLQ.**, **.S
Responses
Response content type
application/json
200
Ok
Example Value
Model

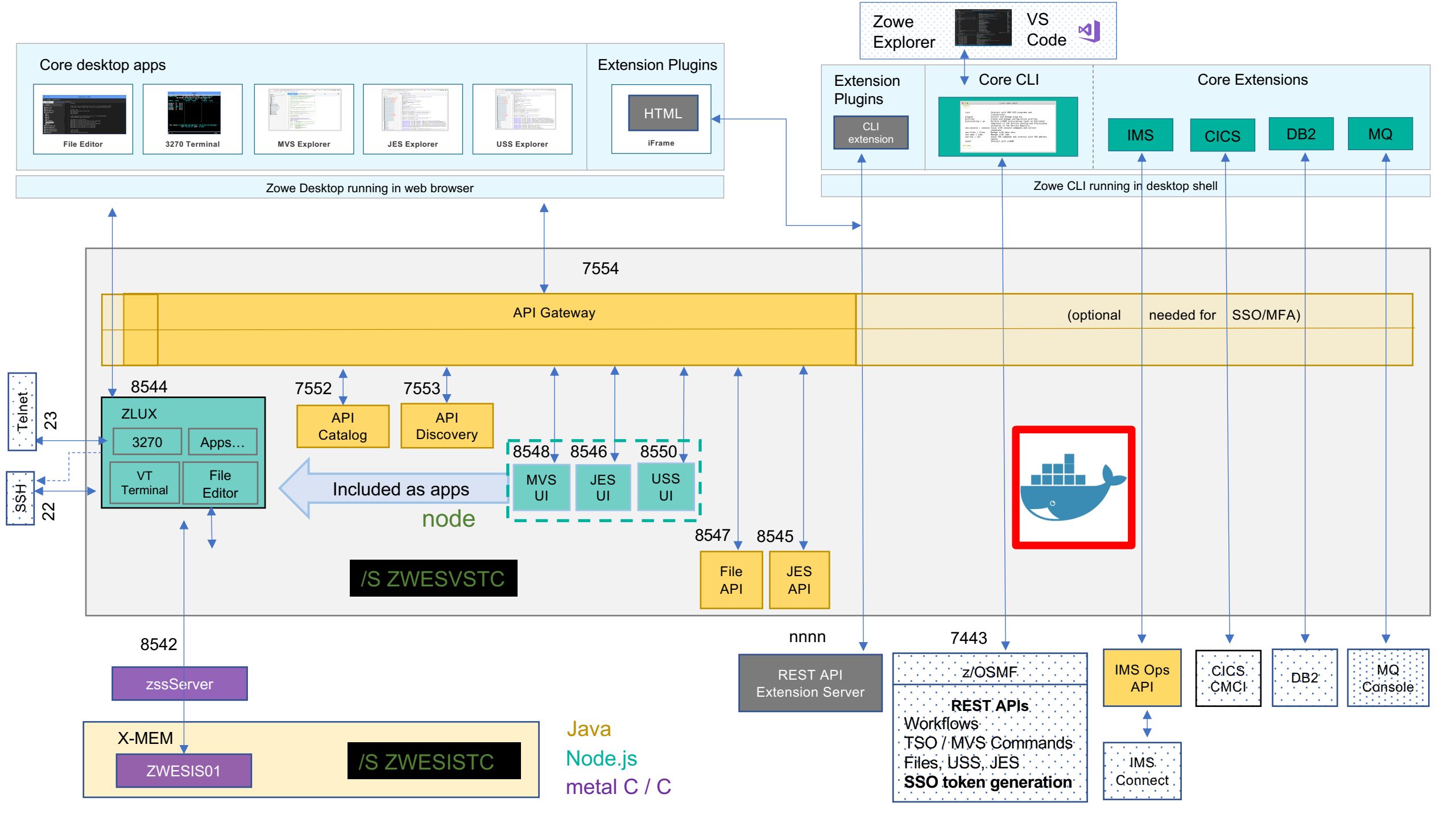
Workload automation in Zowe™ API



Full set of workload automation REST API available for modelling, monitoring and administration

Zowe Conformant

API MEDIATION LAYER - 2019


Zowe Explorer
VS Code
Core desktop apps
File Editor
3270 Terminal
MVS Explorer
JES Explorer
USS Explorer
Extension Plugins
HTML
iFrame
Extension Plugins
CLI extension
Core CLI
Core Extensions
IMS
CICS
DB2
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Zowe Desktop running in web browser
Zowe CLI running in desktop shell
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API Gateway
(optional needed for SSO/MFA)
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Apps...
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Included as apps
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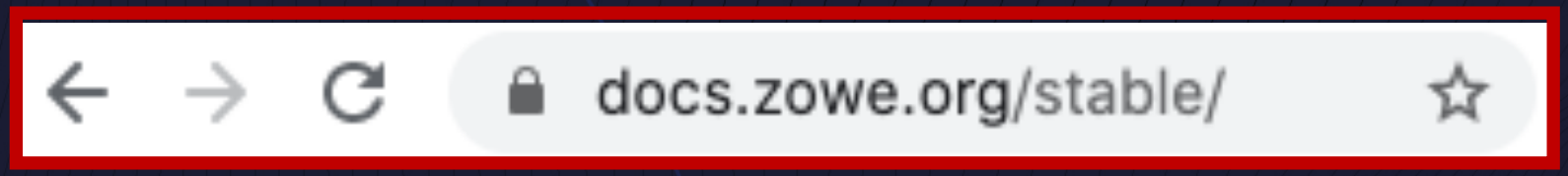
nnnn
REST API Extension Server
7443
z/OSMF
REST APIs
Workflows
TSO / MVS Commands
Files, USS, JES
SSO token generation
IMS Ops API
IMS Connect
CICS CMCI
DB2
MQ Console



Download Zowe

Zowe has both server and client components, which you can install independently. Download the latest installer to install Zowe on the z/OS server, on your computer, or both. Start your journey with Zowe today!

Want to build Zowe on your own? Access Zowe GitHub repositories to download the source code.

Server-side component installer

Install Zowe z/OS components from the **convenience build** or the **SMP/E build** depending on your need.

You can also optionally use the Docker build technical preview to run a subset of the Zowe server-side components outside z/OS. Download and learn more about the build in the technical preview section.

Convenience build

PAX archive format installed on the z/OS server

Zowe 1.18.0 z/OS Convenience build

Read installation docs

SMP/E build

SMP/E format installed on the z/OS server

Download the base FMID AZWE001 (based on v1.9.0) first and then apply the PTFs to get the latest version.

Zowe 1.9.0 FMID AZWE001

Zowe 1.18.0 PTF UO01965 and UO01966

Read installation docs

Client-side component installer

Install **Zowe CLI** or **Zowe Explorer**, a Visual Studio Code extension powered by Zowe CLI.

Zowe CLI

Install Zowe CLI from the local package or from an npm registry if your computer is connected to the Internet.

Download the Zowe CLI core package and optionally download the plug-ins (CICS, Db2, IMS, MQ, z/OS FTP, and so on) to gain more capabilities.

Zowe 1.18.0 CLI Core

Zowe 1.18.0 CLI Plug-ins

Read installation docs

Zowe Client SDKs

Download the Zowe Software Development Kits (SDKs) for use in development and automation.

Zowe 1.18.0 Node.js Client SDK

Zowe 1.18.0 Python Client SDK

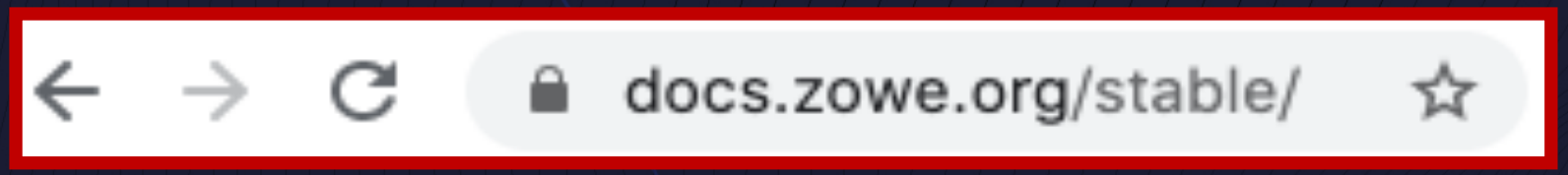
Read installation docs

Zowe Explorer

Installed directly to VSCode within the GUI

Visual Studio Code Marketplace

Read installation docs



Introduction

The installation of Zowe™ consists of two independent processes: installing the Zowe server components either entirely on z/OS or a combination of z/OS and Docker, and then installing Zowe CLI on a desktop computer.

The Zowe server components provide a web desktop that runs in a web browser providing a number of applications for z/OS users, together with an API mediation layer provides single-sign on (SSO), organization of the multiple zowe servers under a single website, and other capabilities useful for z/OS developers.

Zowe CLI can connect to z/OS servers and allows tasks to be performed through a command line interface.

Because Zowe is a set of components, before installing Zowe, first determine which components you want to install and where you want to install them. This guide provides documentation for all of the components and it is split into sections so you can install as much as you need.

Here are some scenarios to consider:

- If you will only be accessing the Zowe server components through a web browser or REST API client, then you do not need to install the Zowe CLI.
- If you will only be using the Zowe CLI, depending on the plugins used you may not need to install the Zowe server components.
- If you intend to use Docker for the server components, less components need to be installed on z/OS. If you are not using the Desktop or ZSS, then it's possible run the other Zowe components without installing any of Zowe onto z/OS.

Before you start the installation, review the information on system requirements and other considerations.

Planning the installation of Zowe server components

All Zowe server components can be installed on z/OS, but some have the alternative option of being run inside of a Docker image on a Linux host. Which option you choose effects the prerequisites, where they are installed, and the installation steps needed.

Planning z/OS installation

If you are installing one or more server components onto z/OS, the following information is required during the installation process. Software and hardware prerequisites are covered in the next section.

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Zowe

Zowe, a top level project of Open Mainframe Project

https://www.zowe.org zowe-user@lists.openmainframepr...

Repositories 113 Packages People 132 Teams 36 Projects

Pinned repositories

community
Zowe Community - Sub-projects, Squads, Contribution Guidelines, Meeting Minutes, and more
27 33

zlc
Zowe Leadership Committee collaboration
Batchfile 13 14

docs-site
Documentation for the Zowe project
Groovy 45 77

Find a repository... Type: All Language: All

explorer-mvs
JavaScript EPL-2.0 9 0 1 7 Updated 10 minutes ago

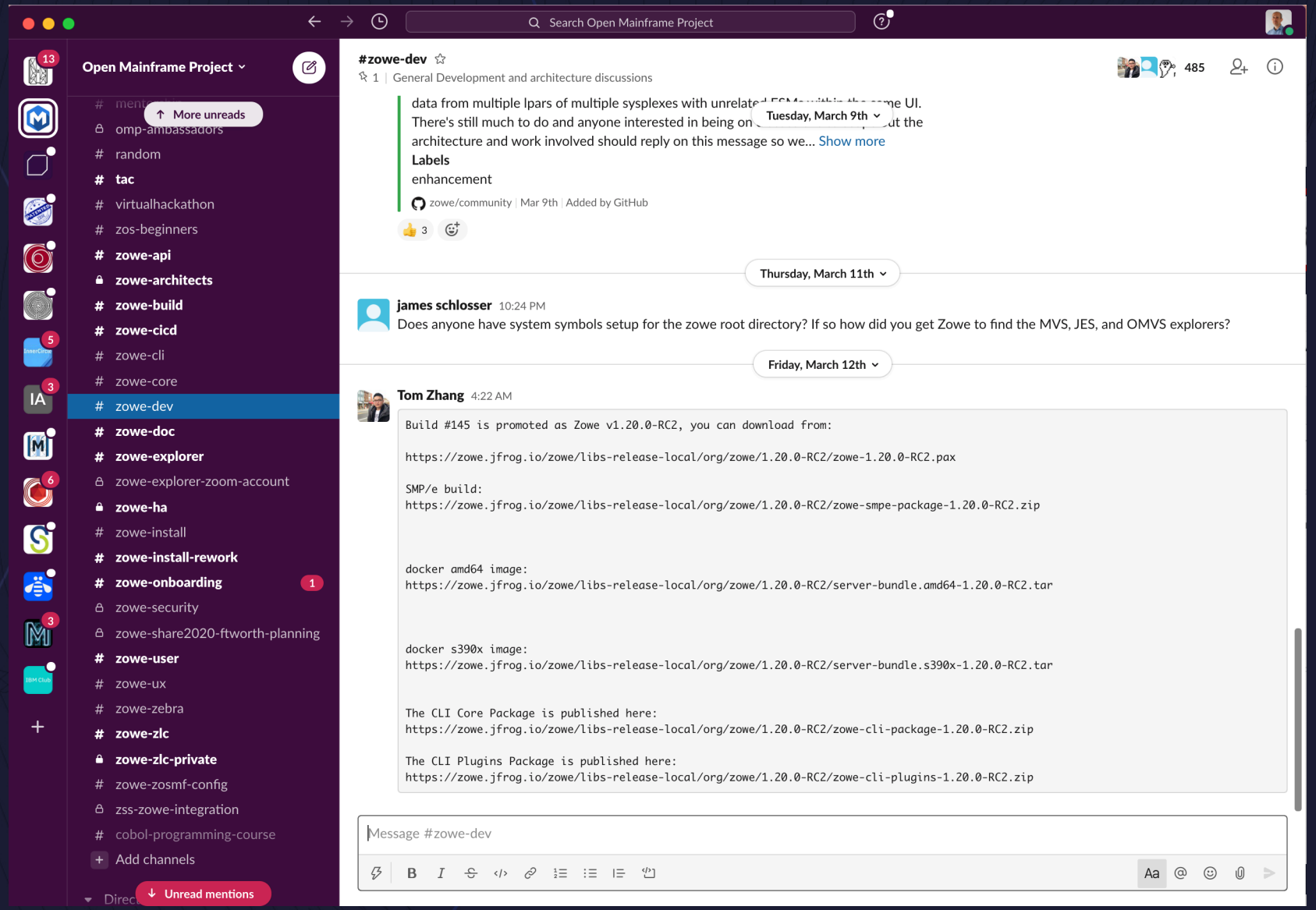
zowe-install-packaging
Packaging repository for the Zowe install scripts and files
Shell EPL-2.0 34 18 246 (1 issue needs help) 5 Updated 18 minutes ago

explorer-jes

Top languages
TypeScript JavaScript Java
Shell Groovy

Most used topics
Manage
zowe zowe-cli mainframe java rest-api

https://slack.openmainframeproject.org/

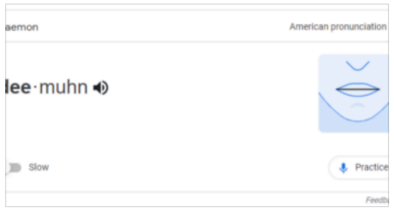


medium.com/zowe

Top 5 Most Read Zowe Stories

{Core} 2020 was a year of growth for the Zowe open source framework, highlighted by the 41 articles contributed by the community.

David McNierney
Jan 5 · 2 min read



Zowe CLI — A Faster Experience

{Core} Here we'll show a feature planned for the next major version of Zowe CLI — the ability to run it in "daemon" mode.

Dan Kelosky
Dec 29, 2020 · 3 min read

CA Vantage and Zowe

{Ecosystem} Reducing the strain on storage administrators with CA Vantage and Zowe

James Branam
Dec 17, 2020 · 4 min read

Deep interaction with zOS in Zowe

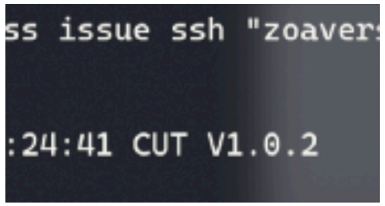
{Core} Integrate new functions to ZSS to enable new zOS functionality in Zowe UI.

Jakub Balhar
Nov 25, 2020 · 6 min read

Access z/OS Performance and Management Data using CA SYSVIEW and Zowe CLI

{Ecosystem} The Zowe CLI and CA System plugin allows access to z/OS Performance Management Datan from JES, CICS, MQ, DB2, IMS and more ...

Michael Heuzey
Nov 24, 2020 · 5 min read



How to Call Z Open Automation Utilities (ZOA Utilities) from Zowe CLI

{Core} Zowe CLI working alongside ZOA Utilities. Background, samples, opening up the Zowe CLI to access and manipulate your z/OS system

Dan Kelosky
Oct 20, 2020 · 3 min read

CA File Master Plus Zowe CLI Plugin: Enhanced to support Single Sign-on

{Ecosystem} Using CA File Master Plus with the Zowe CLI and API alongside multi-factor authentication and single sign-on.

Sudeep Chaurasia
Dec 14, 2020 · 4 min read

The ZAAS Client: a library for the API Mediation Layer

{Core} The ZAAS Java client library allows interaction with Zowe's SSO, JWT, MFA and PassTicket mechanisms provided by Zowe. Here's how !

Andrea Tabone
Dec 3, 2020 · 5 min read

Zowe SDKs: Build z/OS Connected Applications Faster

{Core} For some time, the Open Mainframe Project's Zowe has been opening up the mainframe ecosystem, allowing end users to leverage the...

Andrew Harn
Nov 30, 2020 · 4 min read

Keep certificates stored in the SAF keyrings

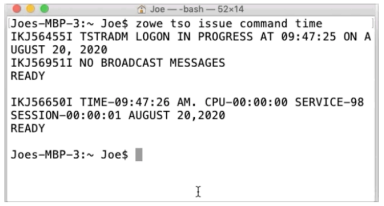
{Core} Zowe now supports the possibility to keep the certificates for communication safely stored within a SAF keyring. Here is how ...

Jakub Balhar
Sep 18, 2020 · 11 min read

Streamline your mainframe development with Zowe Explorer & Zowe CLI (a series...

{Core} Zowe Explorer and Zowe CLI — streamlining mainframe development with REXX.

Alex Dumitru
Aug 25, 2020 · 4 min read



Zowe CLI and TSO commands

{Core} Zowe CLI allows you to issue TSO command, as well as start, work with, and stop a session all from your desktop PC

Joe Winchester
Aug 18, 2020 · 9 min read

https://medium.com/zowe/configuring-zowe-db2-command-line-interface-on-macos-f5dba93b37e7

Configuring Zowe Db2 Command Line Interface

Joe Winchester
Jan 19 · 8 min read

`{Core}` The Open Mainframe Project's Zowe command line interface (CLI) provides the ability for a developer to manipulate z/OS by issuing commands on their laptop. It does this by connecting to z/OS and issuing z/OSMF REST APIs. As well as providing base function, the CLI is also extensible allowing it to connect to other endpoints on z/OS including our favourite enterprise database Db2. This blog describes how to obtain, configure, troubleshoot, and use the Zowe Db2 CLI plugin. I'm fortunate enough to use a Mac as my go-to laptop so the article includes idiosyncrasies peculiar to MacOS, however the Zowe Db2 CLI works equally well on Windows, Linux, or any operating system that can run Node.js.

Pre-requisites

The Command Line Interface has some pre-requisites that need to be installed beforehand, see Software requirements for Zowe CLI plug-ins.

SQL0805N: Database BIND

To be able to run remote client SQL commands against a database it needs to have had a `BIND` command invoked against it. If the database hasn't been bound then you'll see the error `SQL0805N` .

```
Command Error:
DB2 ODBC Driver Error: [node-ibm_db] Error in
ODBCConnection::QuerySync while executing query.Error Details:
Error:    [IBM][CLI Driver][DB2] SQL0805N  Package
"DSNV112E.NULLID.SYSSH200.5359534C564C3031" was not found.
SQLSTATE=51002
SQLCODE:  -805
SQLSTATE: 51002
```

The TSO user ID that does this needs to have `BINDADD` authority *(strictly speaking this depends on the value of the subsystem parameter `BINDND` whose default value is `BINDADD` which could be different between sites)*. More information on the BIND command can be found in the DB2 knowledge centre documentation, as well as The Bind process. It's likely that you'll need to ask your friendly z/OS Db2 sysprog to do the BIND for you, and as they might be getting tired of you pinging them with requests be sure to promise you'll buy them a cup of tea and pastry next time you're together in their favorite neighborhood cafe.

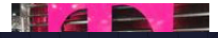
https://www.zdnet.com/article/inside-why-the-mainframe-is-alive-and-thriving/

Why the mainframe is alive and thriving

Mainframes are still going strong after 70 years.

By R "Ray" Wang for Constellation Research | March 5, 2021 -- 20:33 GMT (20:33 GMT) | Topic: Cloud

Mainframes entered the market in the early 1950's when IBM and the seven dwarfs (Burroughs, Unisys, NCR, Control Data, Honeywell, GE, and RCA) created the computing age and competed for critical applications, sophisticated modeling, and large-scale transactions and workloads among the largest of organizations. Over the past seven decades, compute power, storage, and networking have seen various waves of centralization and decentralization amidst each wave of disruptive technology adoption.



5G
T-Mobile says it will

Moreover, investments by organizations such as Broadcom and IBM's in Zowe, the open mainframe project, enable all users to access an integrated and extensible open source framework for z/OS. Users can use one language to access open systems and open software through a set of common APIs and OS capabilities. Consequently, developers can use the same tools for the cloud and mainframe enabling a broader set of developers and resources to work on both. The numbers show this as well with 94 of the top 100 IBM Z Enterprises are running Linux on Z and able to modernize with the mainframe. In addition, a 2019 survey of mainframe professionals conducted by Forrester for IBM showed that nearly 90% of professionals in enterprise computing careers agree the job market for their skill set is growing, and 75% believe there is a high demand for their skills in mainframe.

Open Mainframe Project: Zowe Ready for Prime Time

BY: DON MACVITTIE ON FEBRUARY 14, 2019 — 0 COMMENTS

There is a lot of interest in updating mainframe technology/interfaces across traditional enterprises. As development environments and toolsets have evolved outside the mainframe, there is a struggle to keep up—partially because backward compatibility requirements make wild changes difficult and partly because the very architecture of mainframes is different.


QUESTIONS?

THE END

Tobias Leicher

zClient IT Architect
& zChampion for Modernization

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