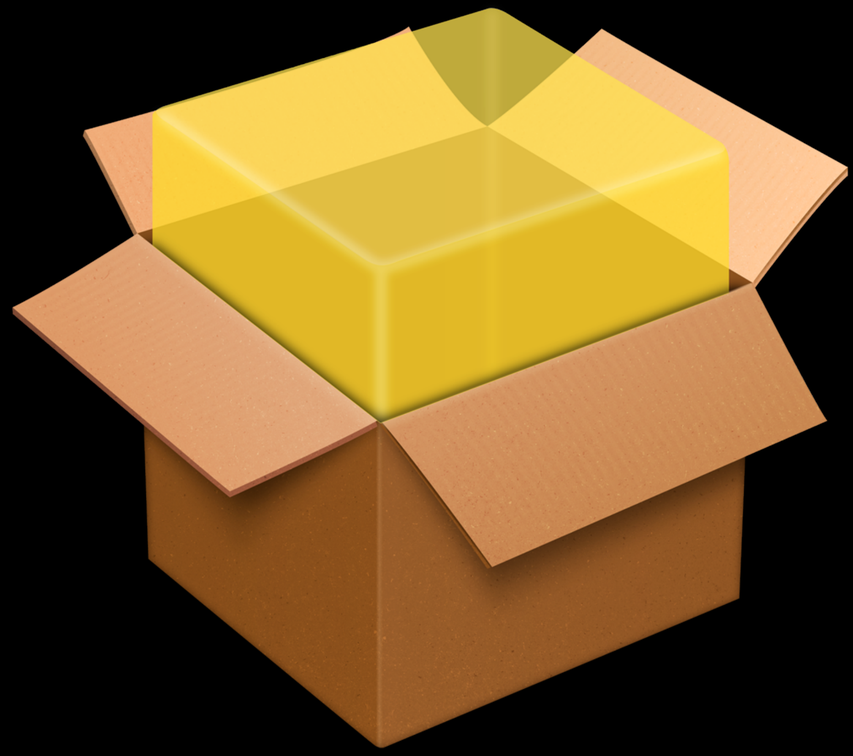
Packaging Parte Tres

MacSysAdmin 2026



Duncan McCracken

About Me

- Originally from Australia
- Live in Mexico





About Me

- Originally from Australia
- Live in Mexico
- 30(ish) years in this industry
- Part of the furniture for a while
- On sabbatical for the last year
- 5 years at Jamf
- 10 years at Mondada

2 Years Ago

https://docs.macsysadmin.se/2024/

macOS application packaging 101

Last Year

https://docs.macsysadmin.se/2025/



Why?

Too much for one session

Why?

To understand what you’re installing

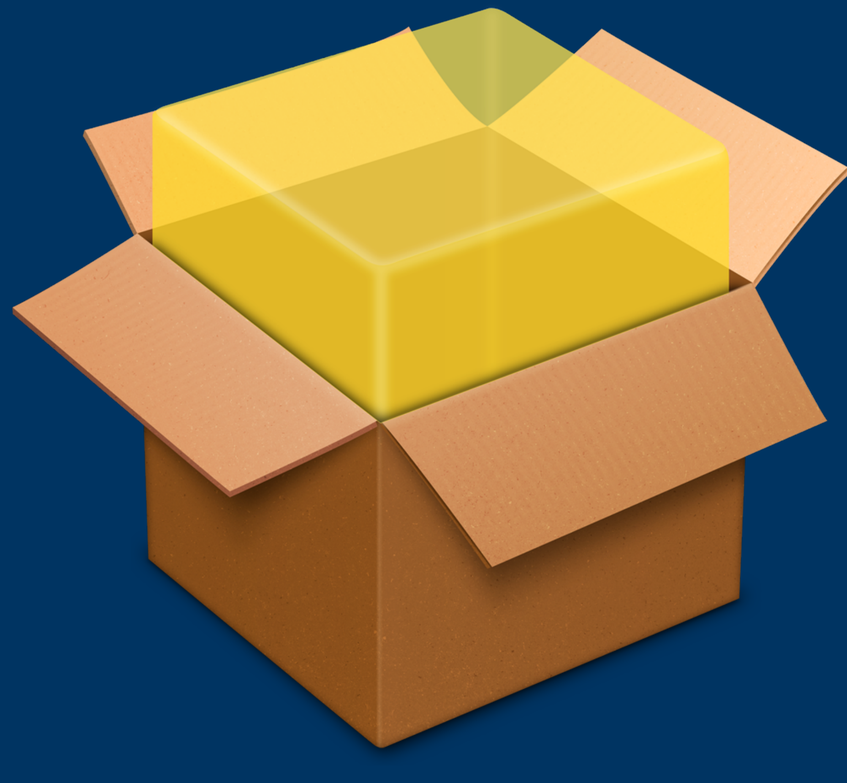
Why?

I really wanted to make a trilogy

Quick Recap

Advanced Packaging

MacSysAdmin 2025



Duncan McCracken

About Me

MacSysAdmin #14 (for me)

- Originally from Australia
- About 30 years in this industry
- The last 5 were with Jamf
- The previous 10 years were at Mondada
- Taking a bit of a break
- Live in Mexico

About Me

MacSysAdmin #14 (for me)

- Originally from Australia
- About 30 years in this industry
- The last 4 years 360 days were with Jamf
- The previous 10 years were at Mondada
- Taking a bit of a break
- Live in Mexico



MacSysAdmin

15 years ago



MacSysAdmin

15 years ago

- 55 mins. No more. No less.
- Don’t expect any questions.
- Lots of live demos.
- I did 2 talks.
- Packaging (good for live demos).
- A now defunct large scale storage solution (less good for live demos).
- Time to re-visit packaging.

Last Year

https://docs.macsysadmin.se/2024/

macOS application packaging 101

Why?

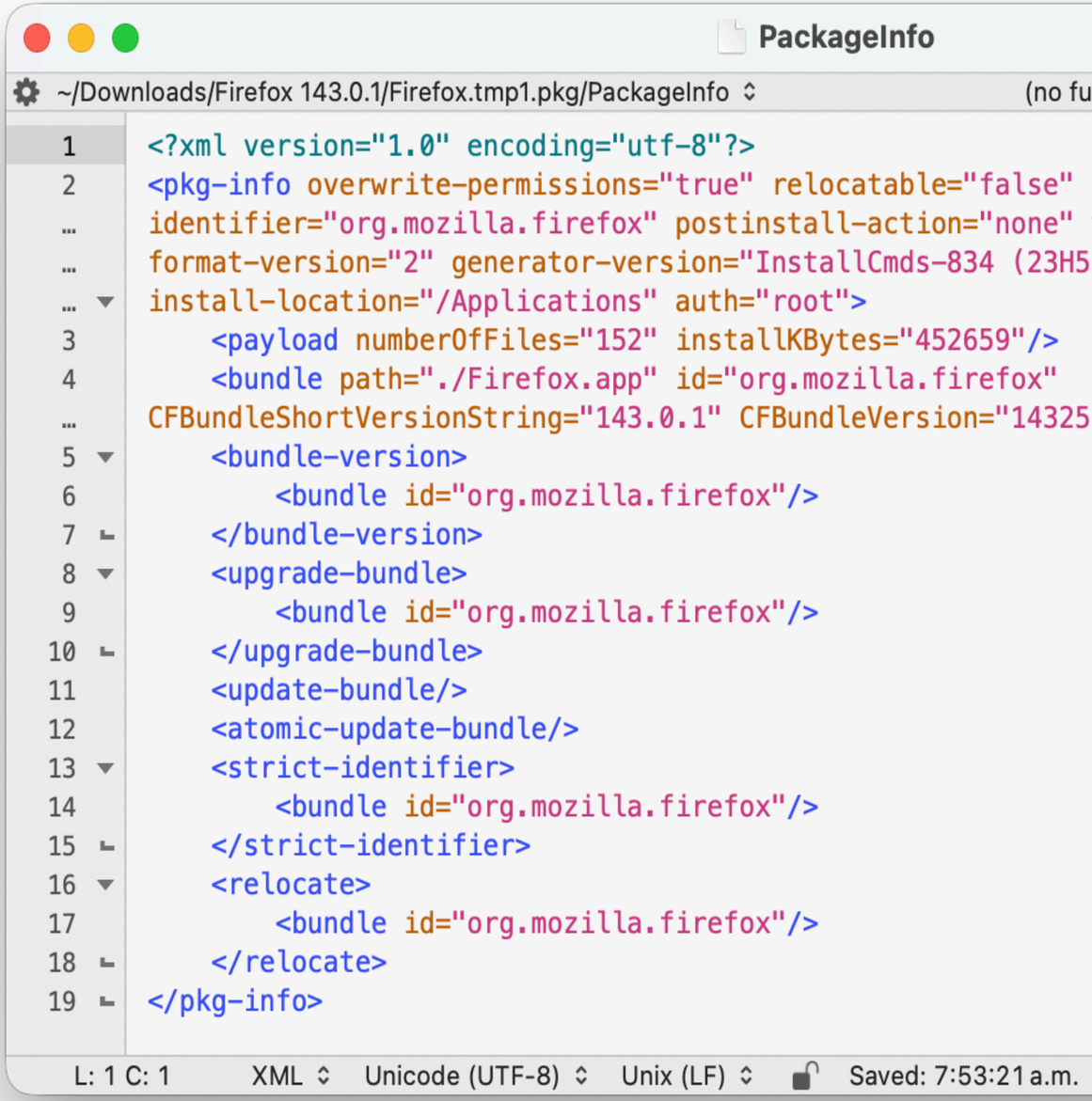
Not necessarily to do, but to know.

Component Package

PackageInfo

<pkg-info>

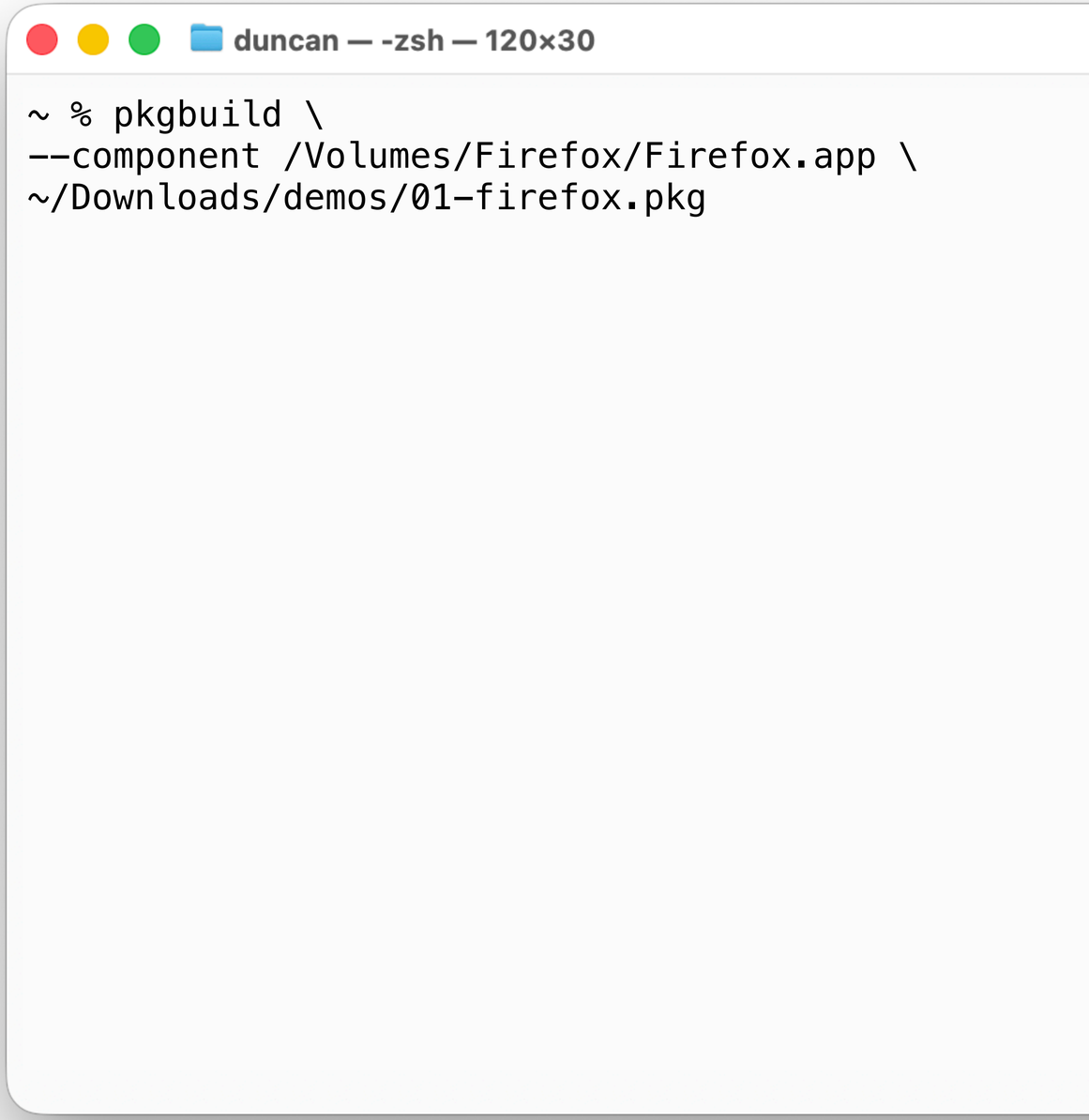
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Component

<pkg-info>

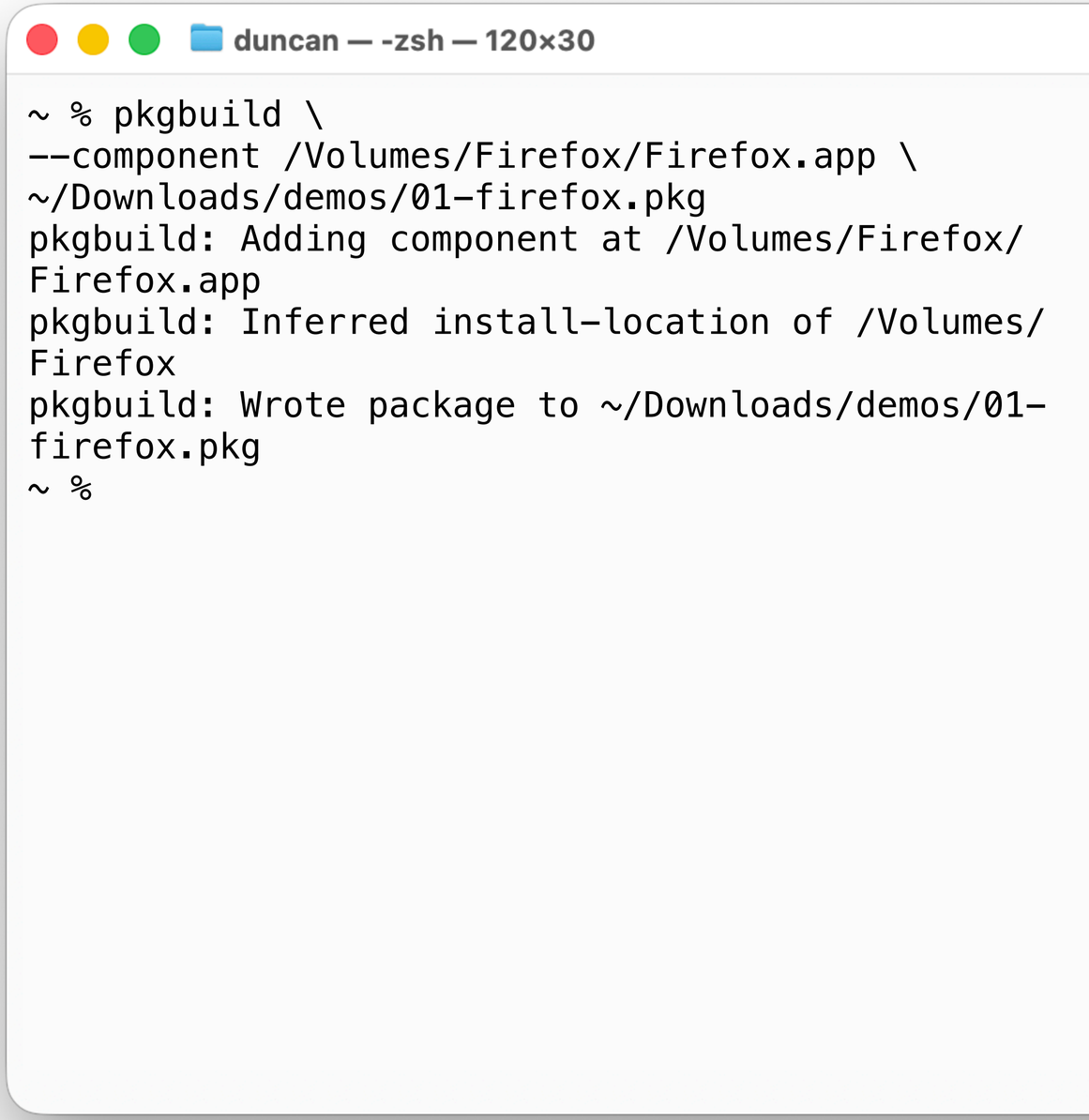
- overwrite-permissions
- relocatable
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- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Component

<pkg-info>

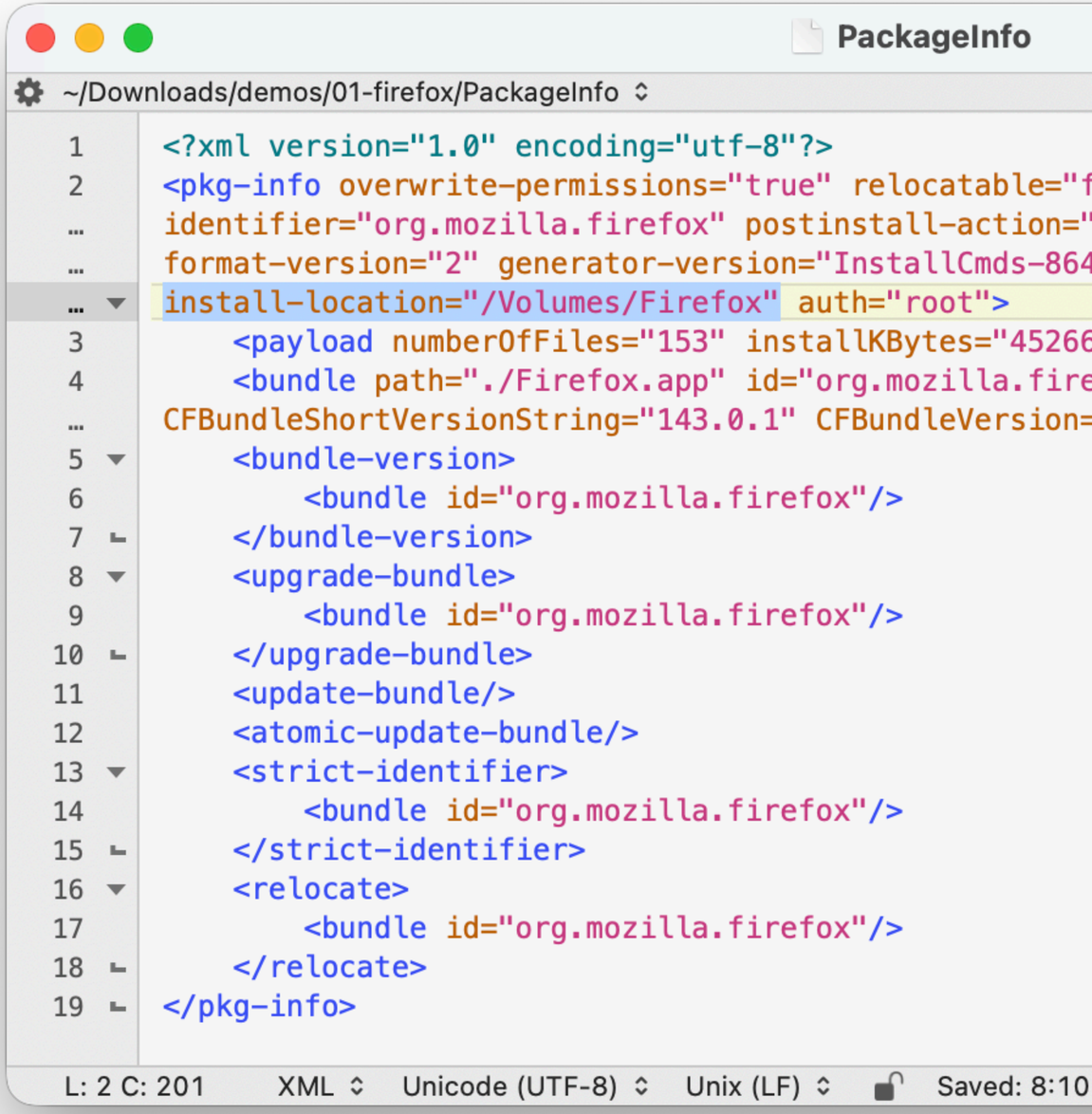
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- **install-location**
- auth
- minimumSystemVersion



Component

<pkg-info>

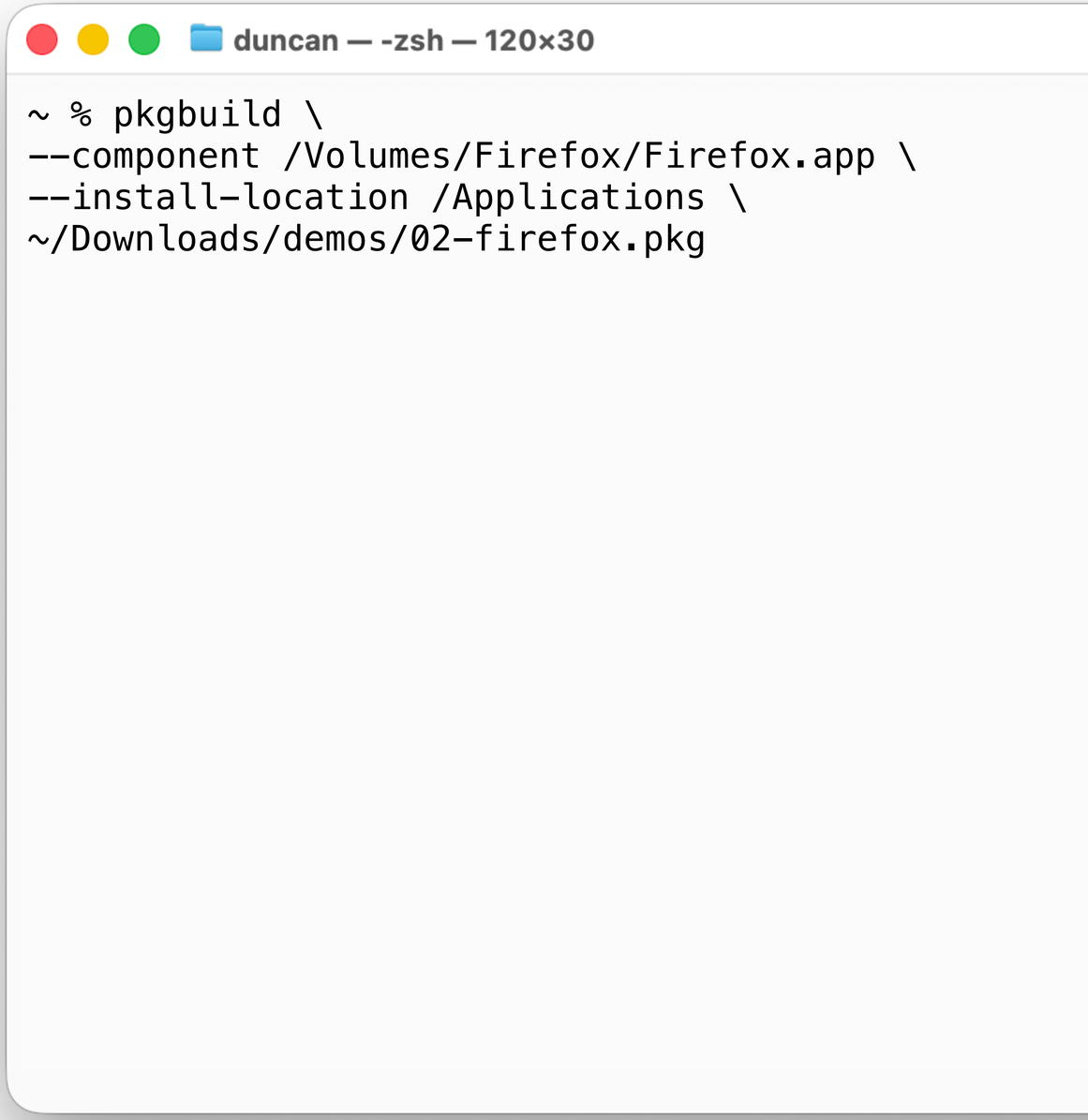
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- **install-location** ❌
- auth
- minimumSystemVersion



Install Location

<pkg-info>

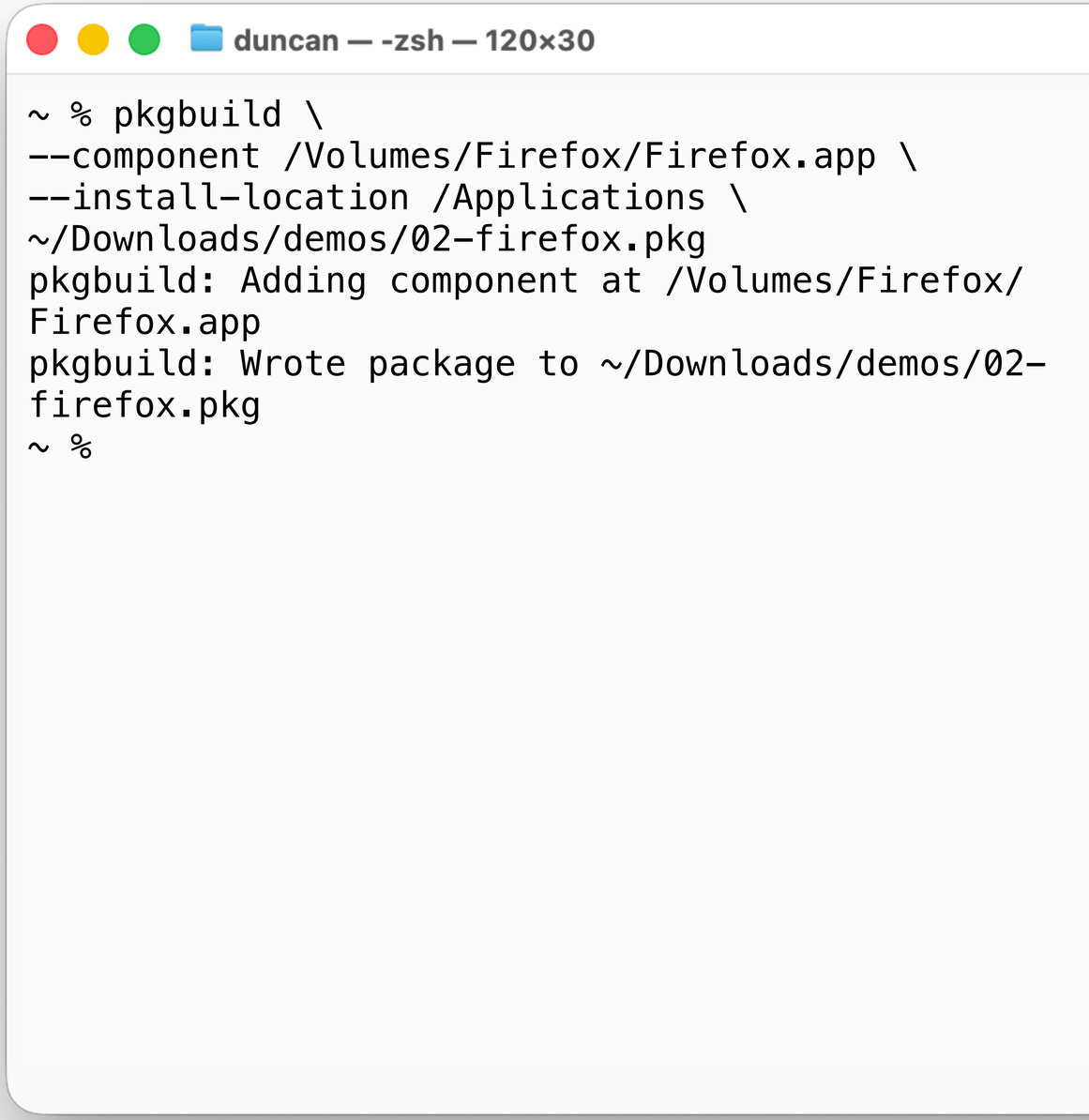
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- **install-location**
- auth
- minimumSystemVersion



Install Location

<pkg-info>

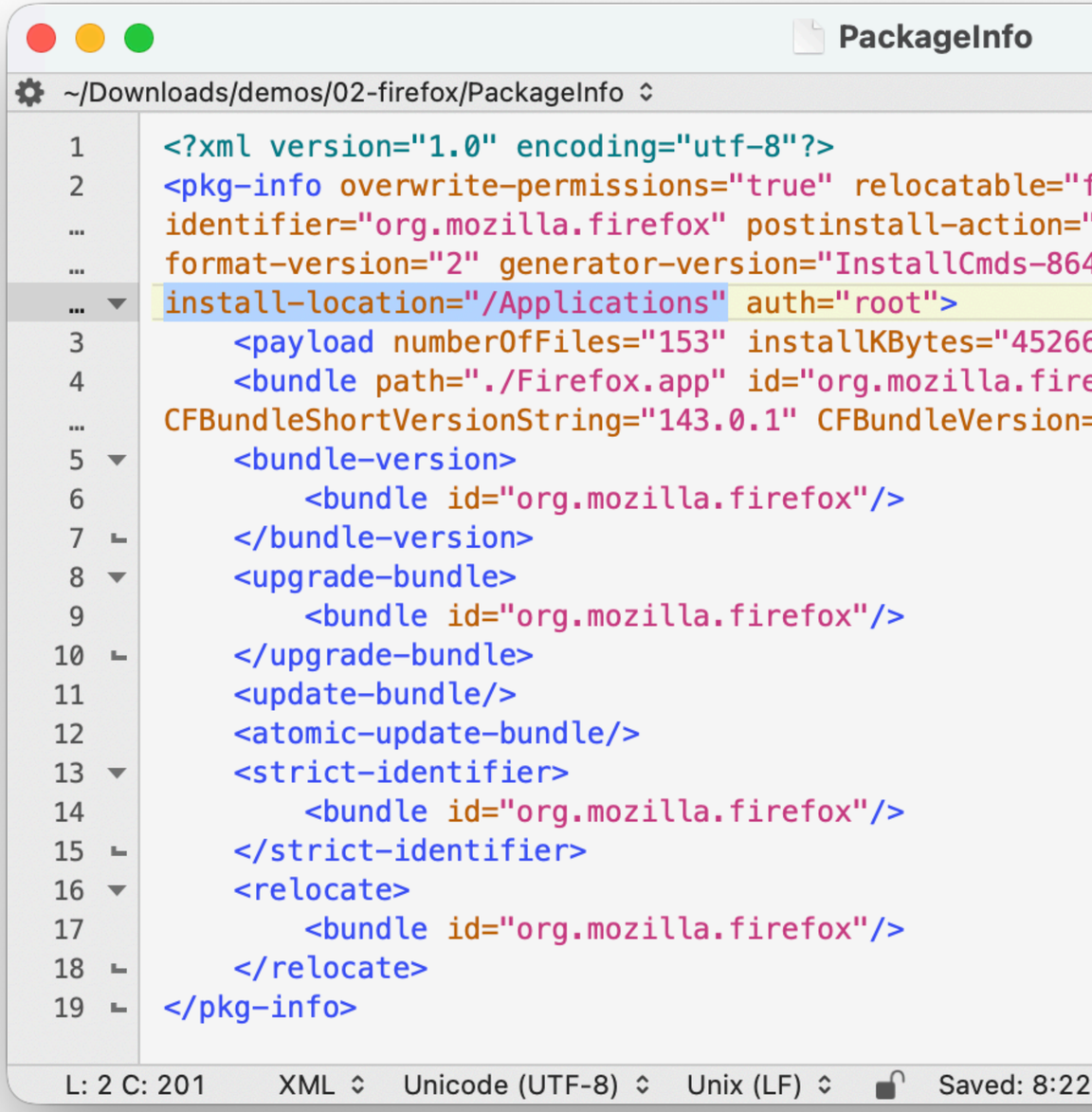
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- **install-location**
- auth
- minimumSystemVersion



Install Location

<pkg-info>

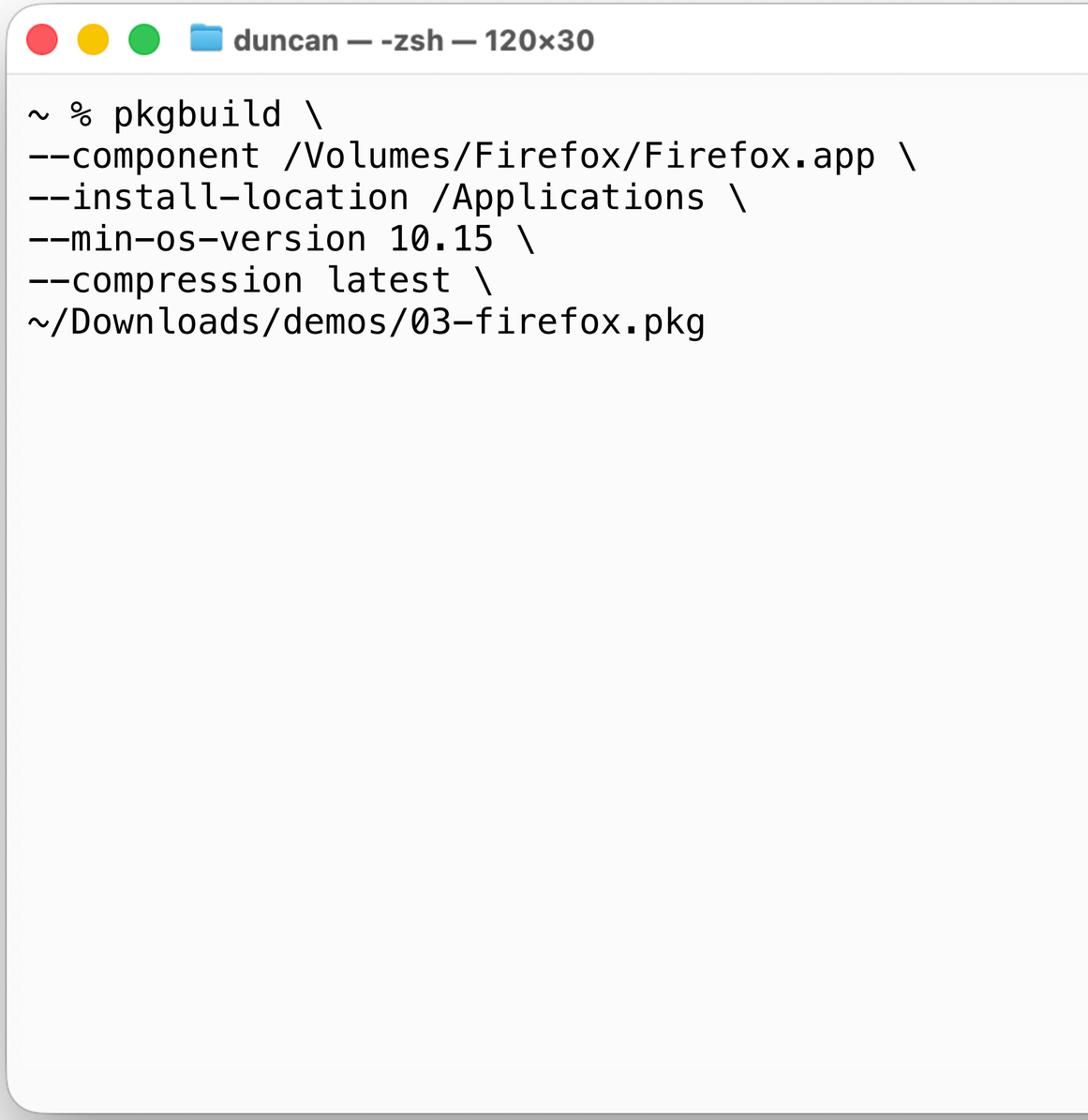
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- **install-location** ✅
- auth
- minimumSystemVersion



Min OS Version

<pkg-info>

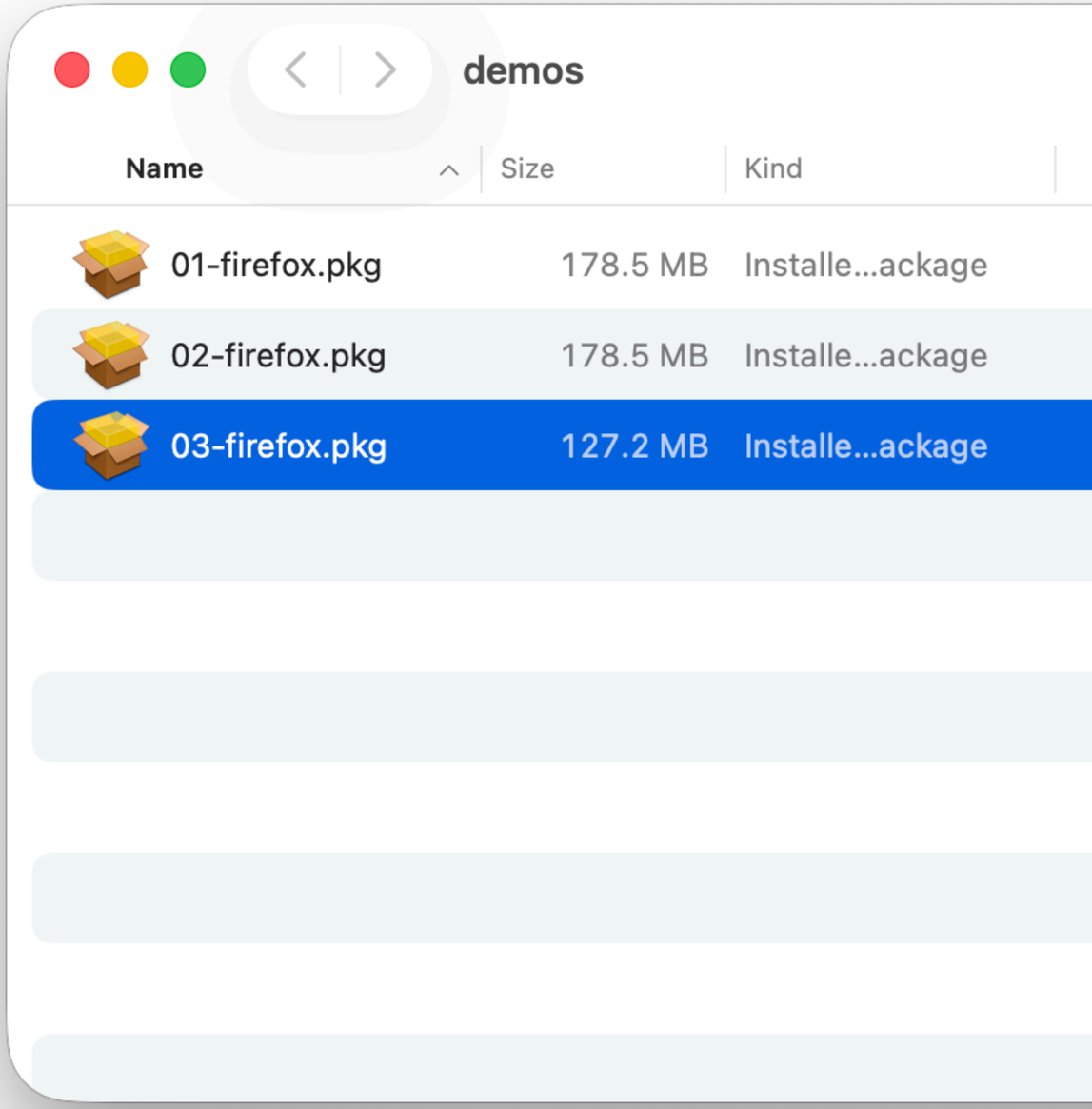
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- **minimumSystemVersion**



Min OS Version

<pkg-info>

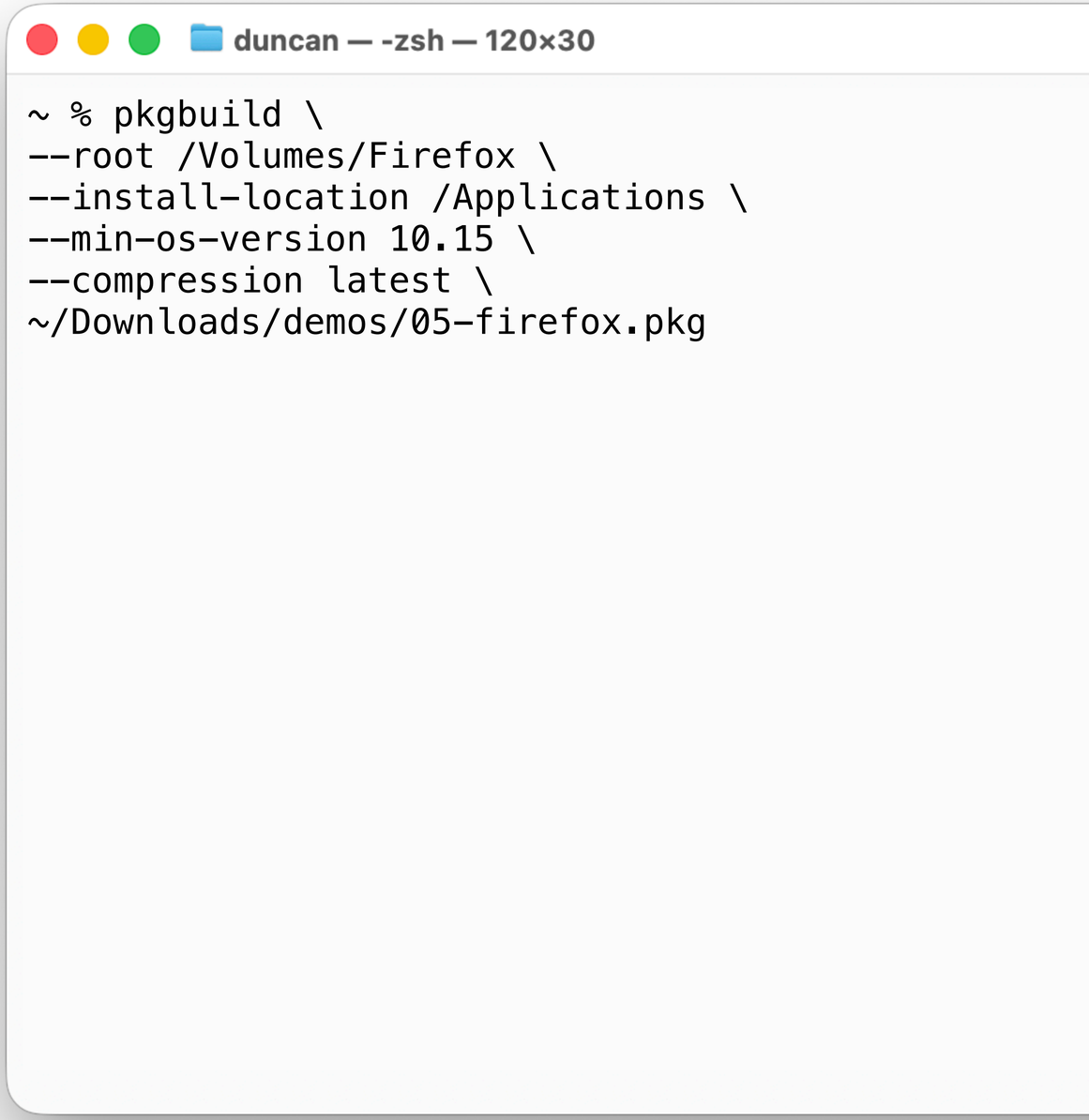
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- **minimumSystemVersion**



Root

<pkg-info>

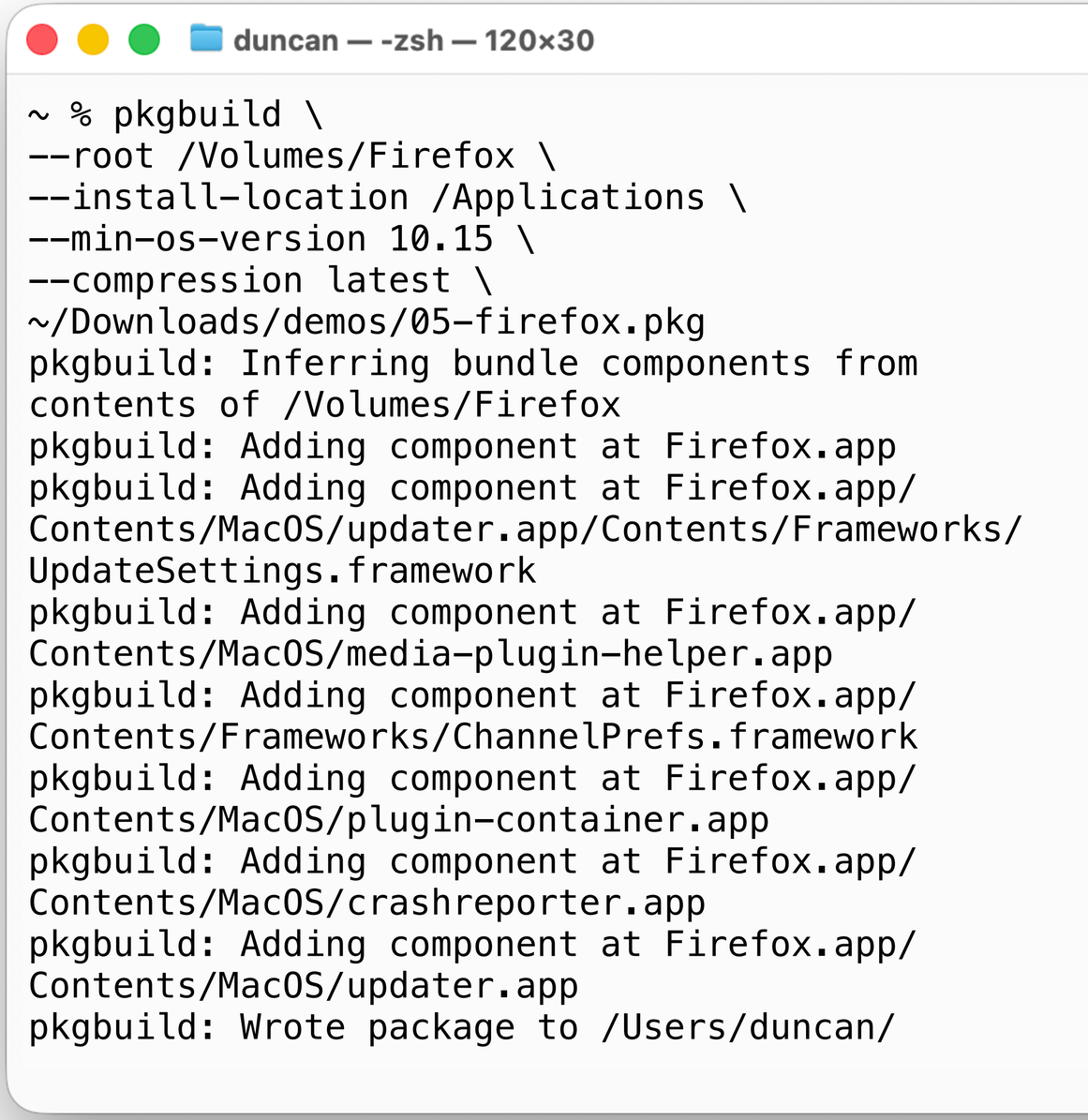
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Root

<pkg-info>

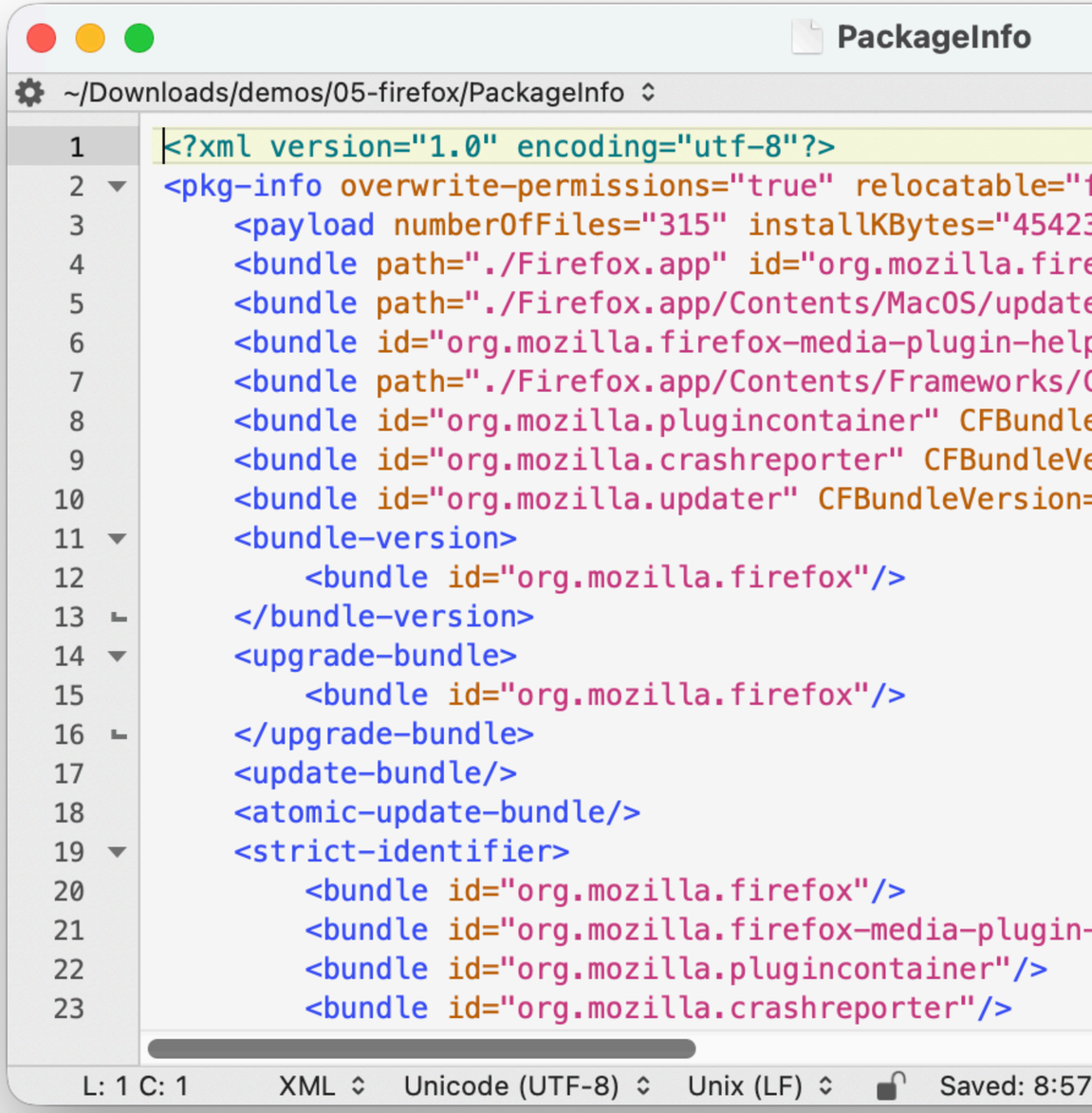
- overwrite-permissions
- relocatable
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- format-version
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- install-location
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Root

<pkg-info>

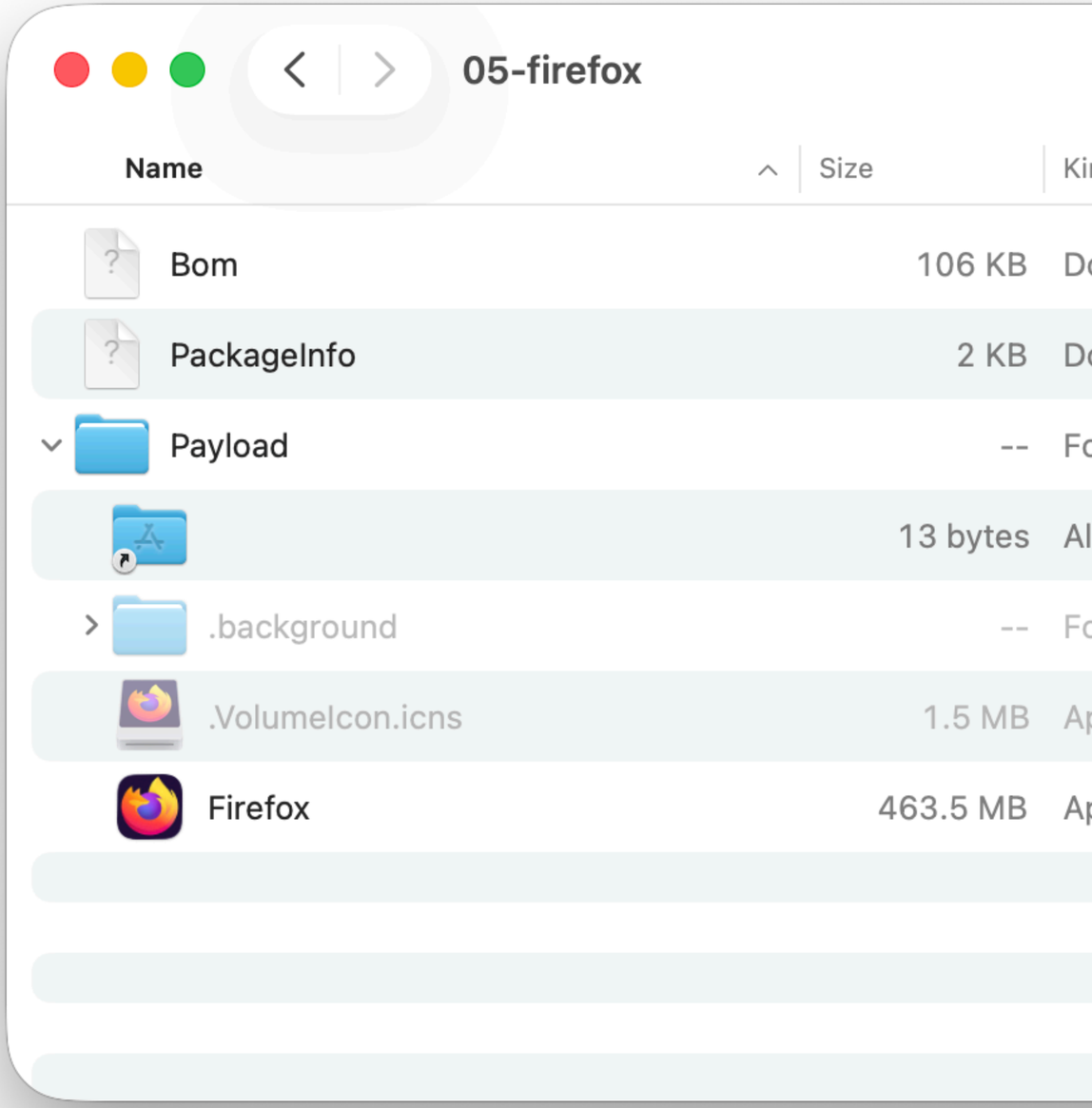
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Root

<pkg-info>

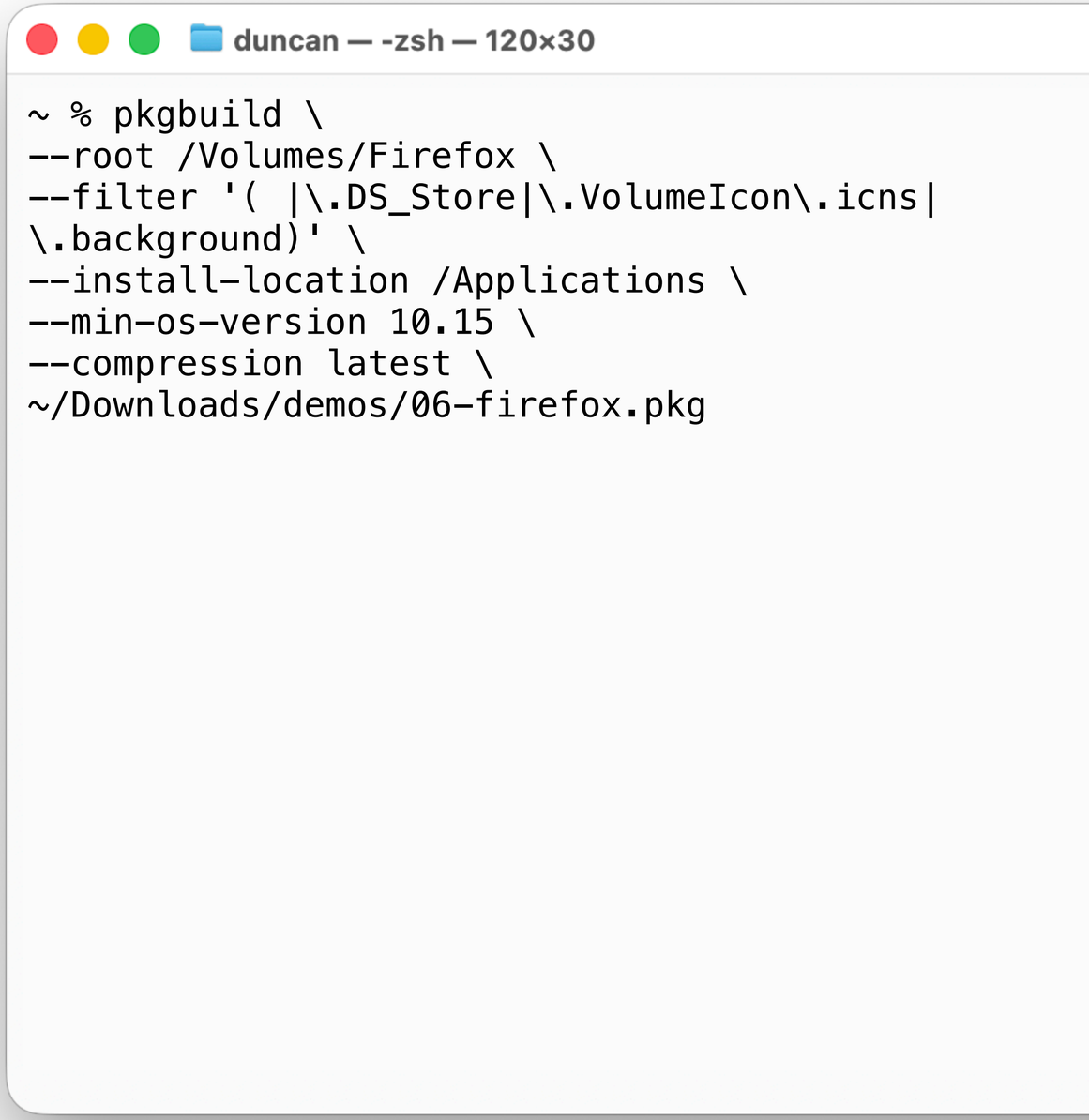
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Filter

<pkg-info>

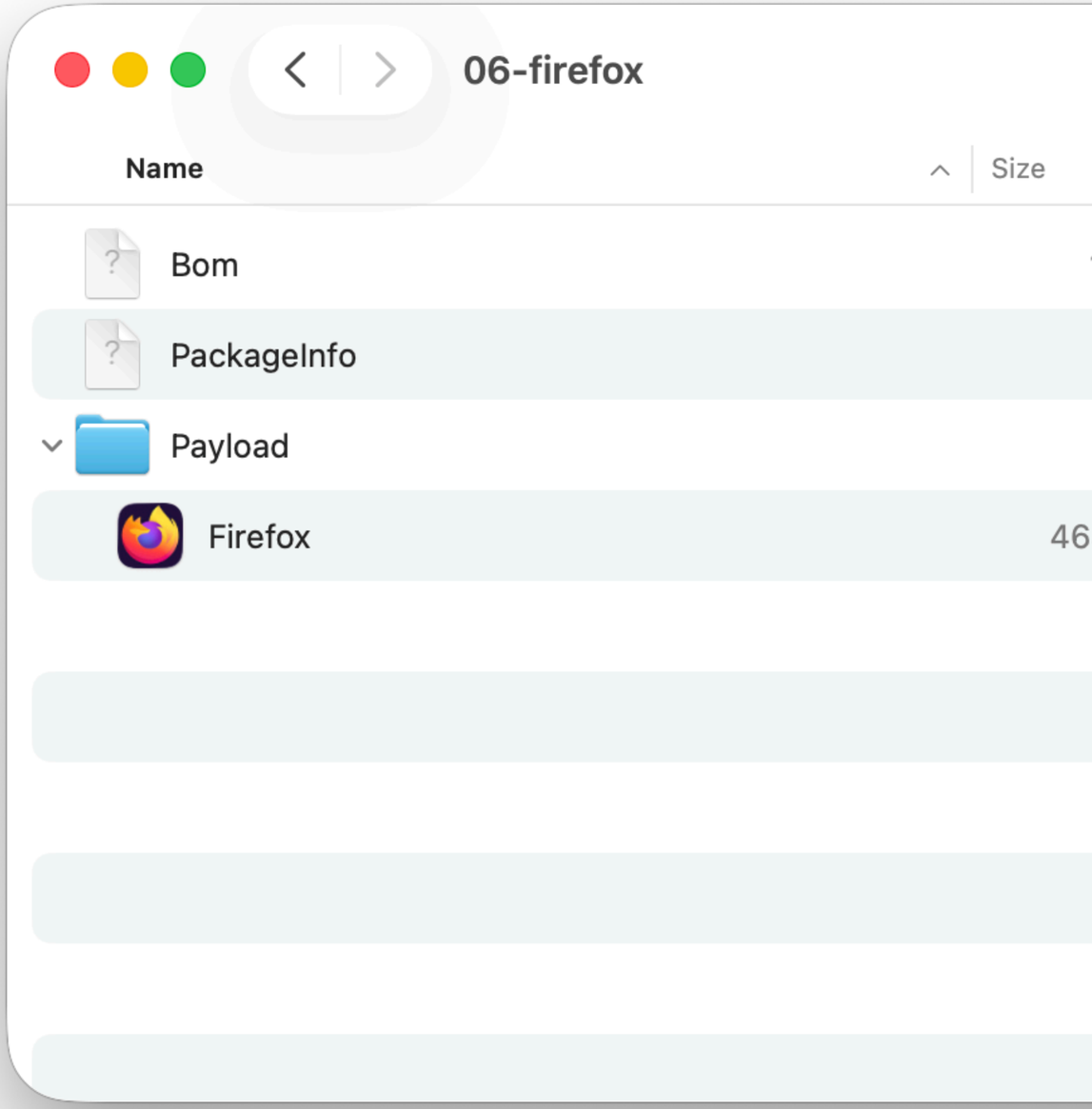
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Filter

<pkg-info>

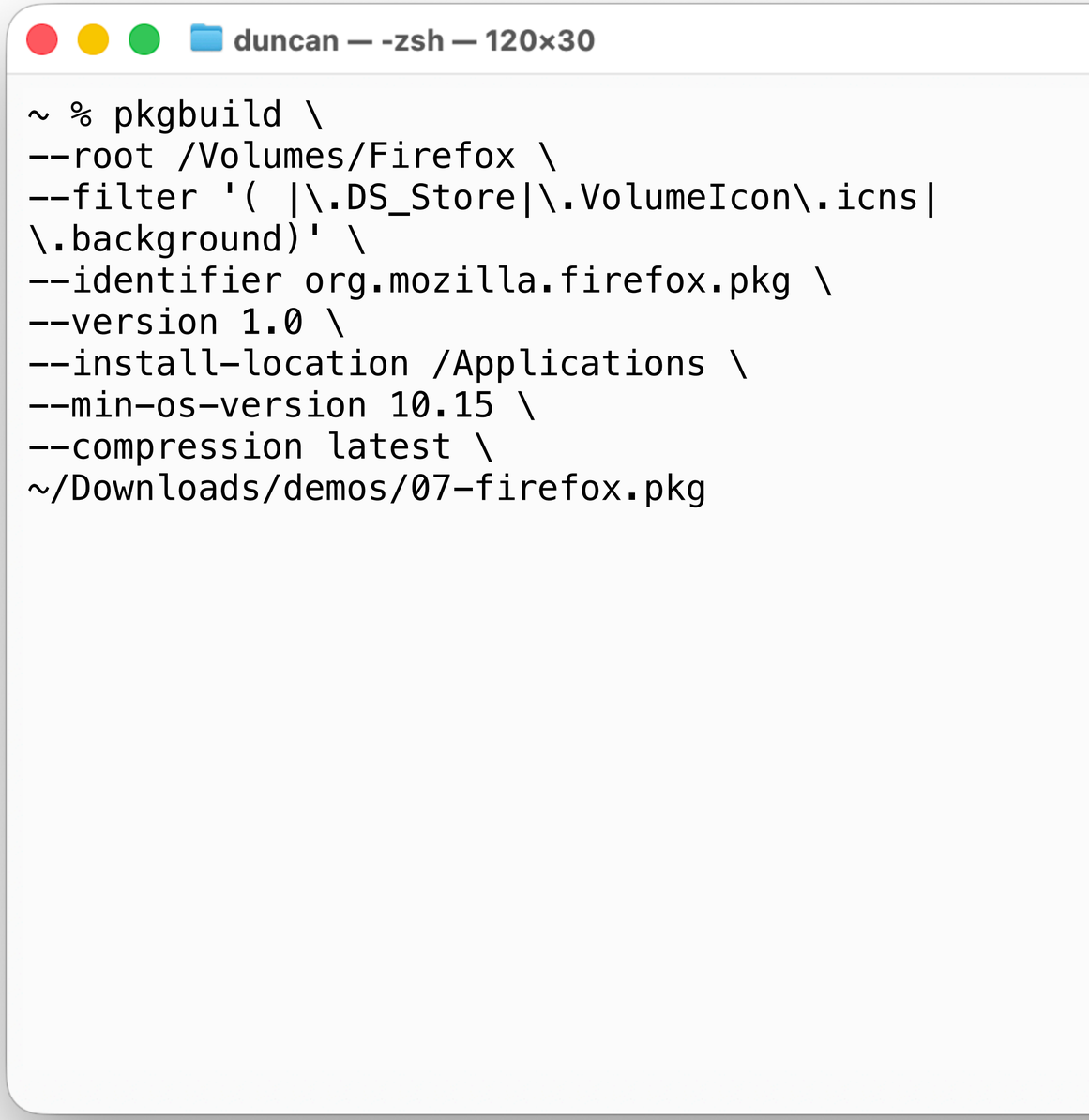
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Identifier & Version

<pkg-info>

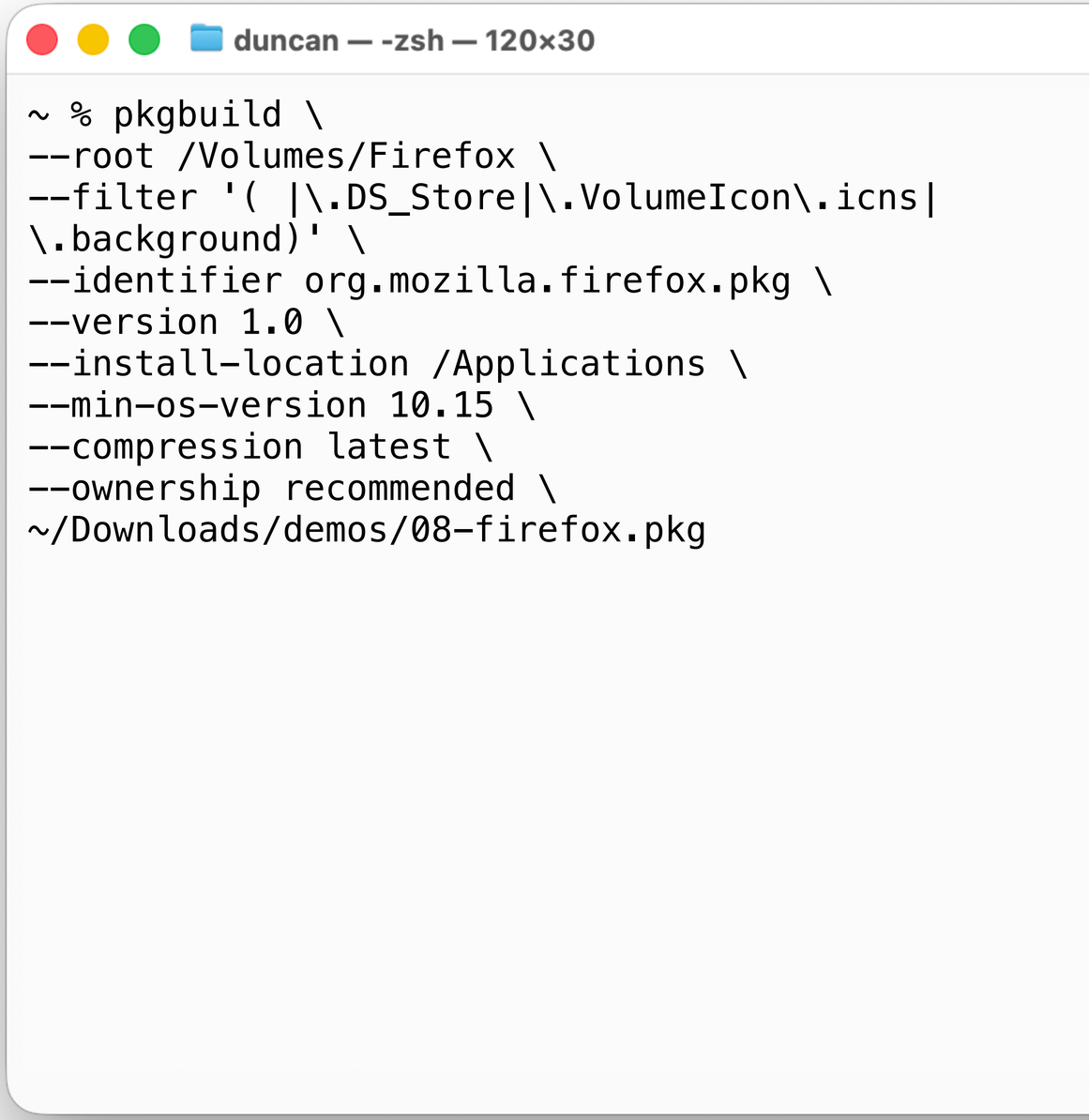
- overwrite-permissions
- relocatable
- **identifier**
- postinstall-action
- **version**
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



Ownership

<pkg-info>

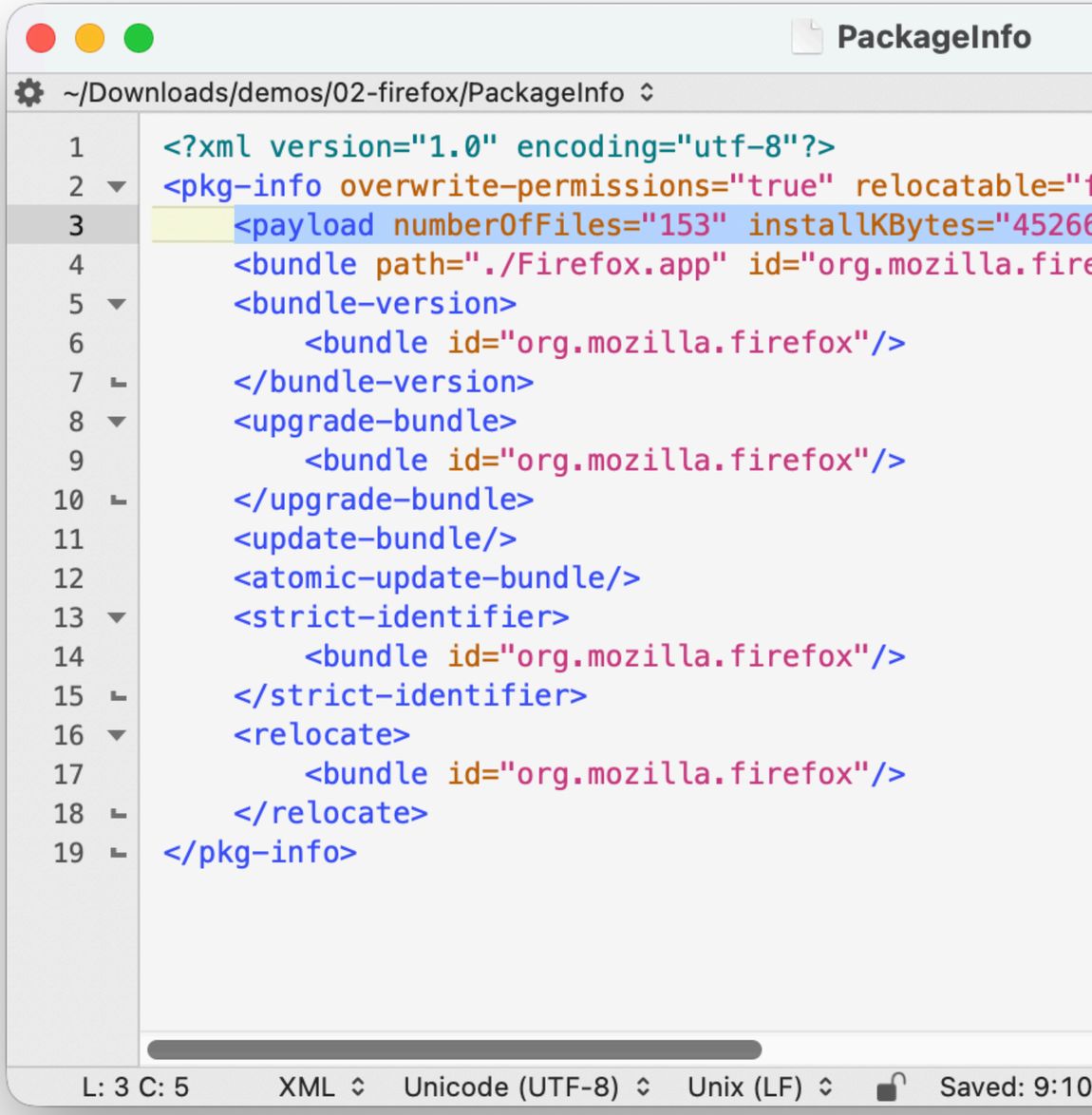
- overwrite-permissions
- relocatable
- identifier
- postinstall-action
- version
- format-version
- generator-version
- install-location
- auth
- minimumSystemVersion



PackageInfo

<payload>

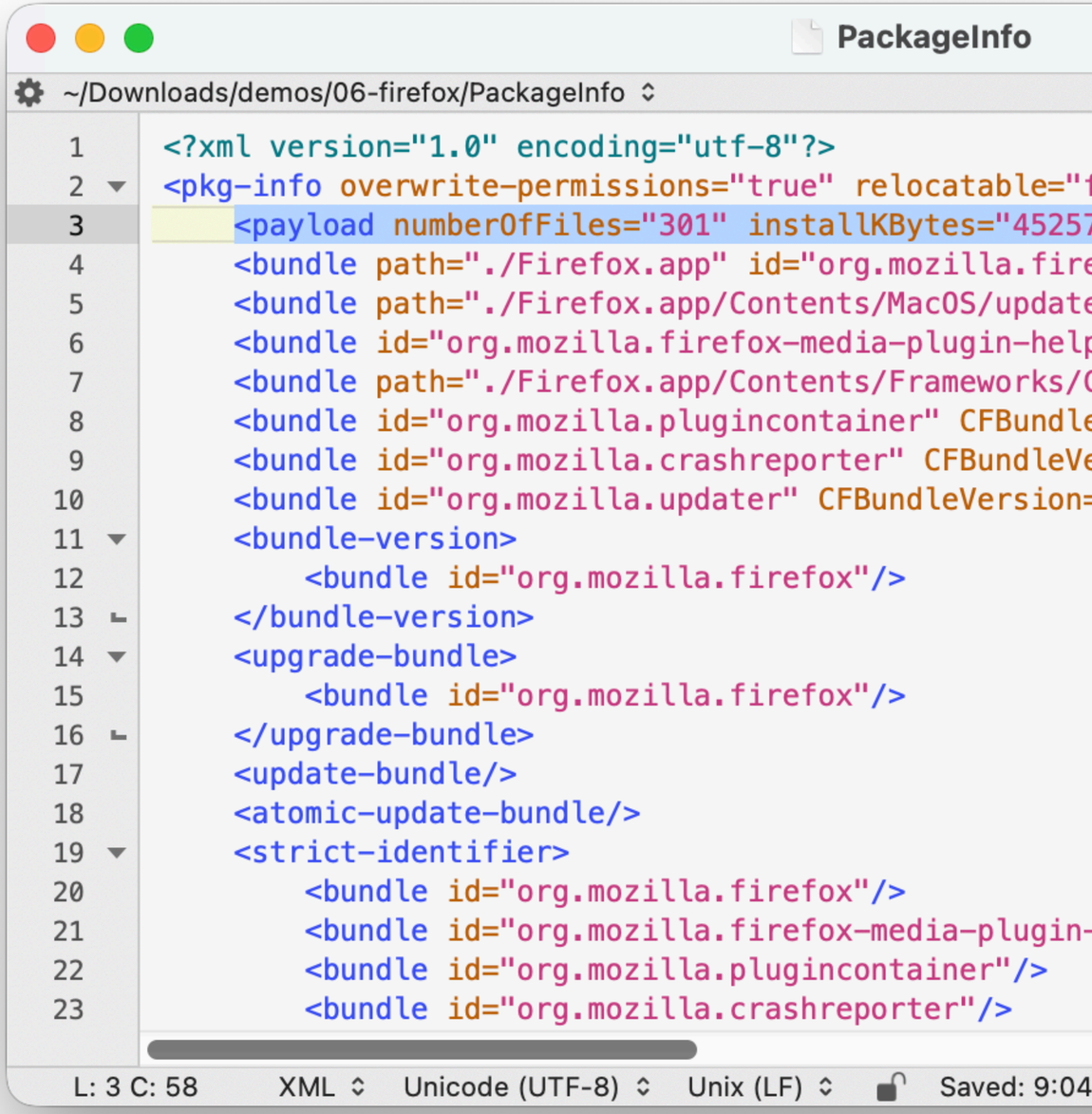
- numberOfFiles
- installKBytes



PackageInfo

<payload>

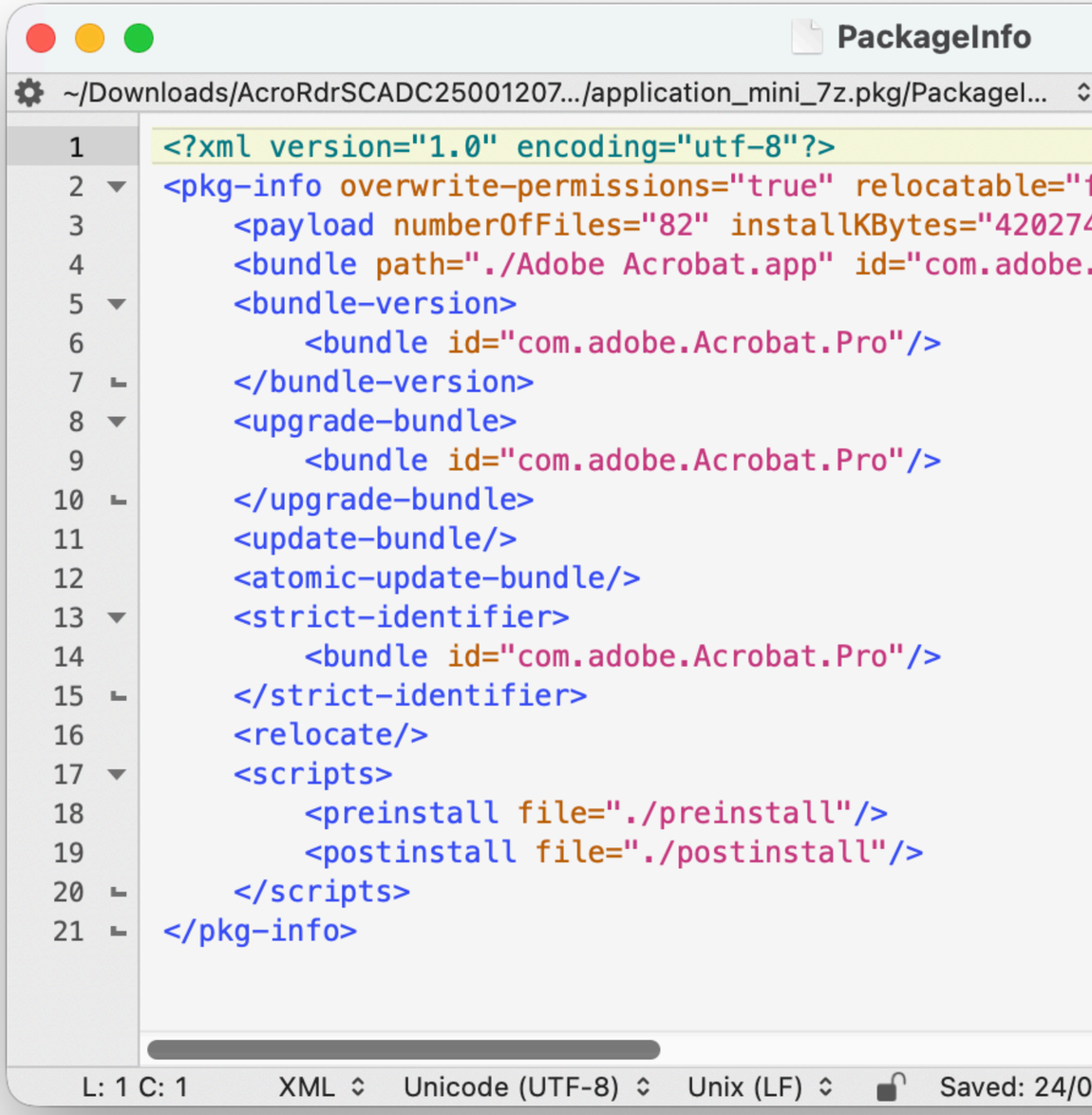
- numberOfFiles
- installKBytes



PackageInfo

<scripts>

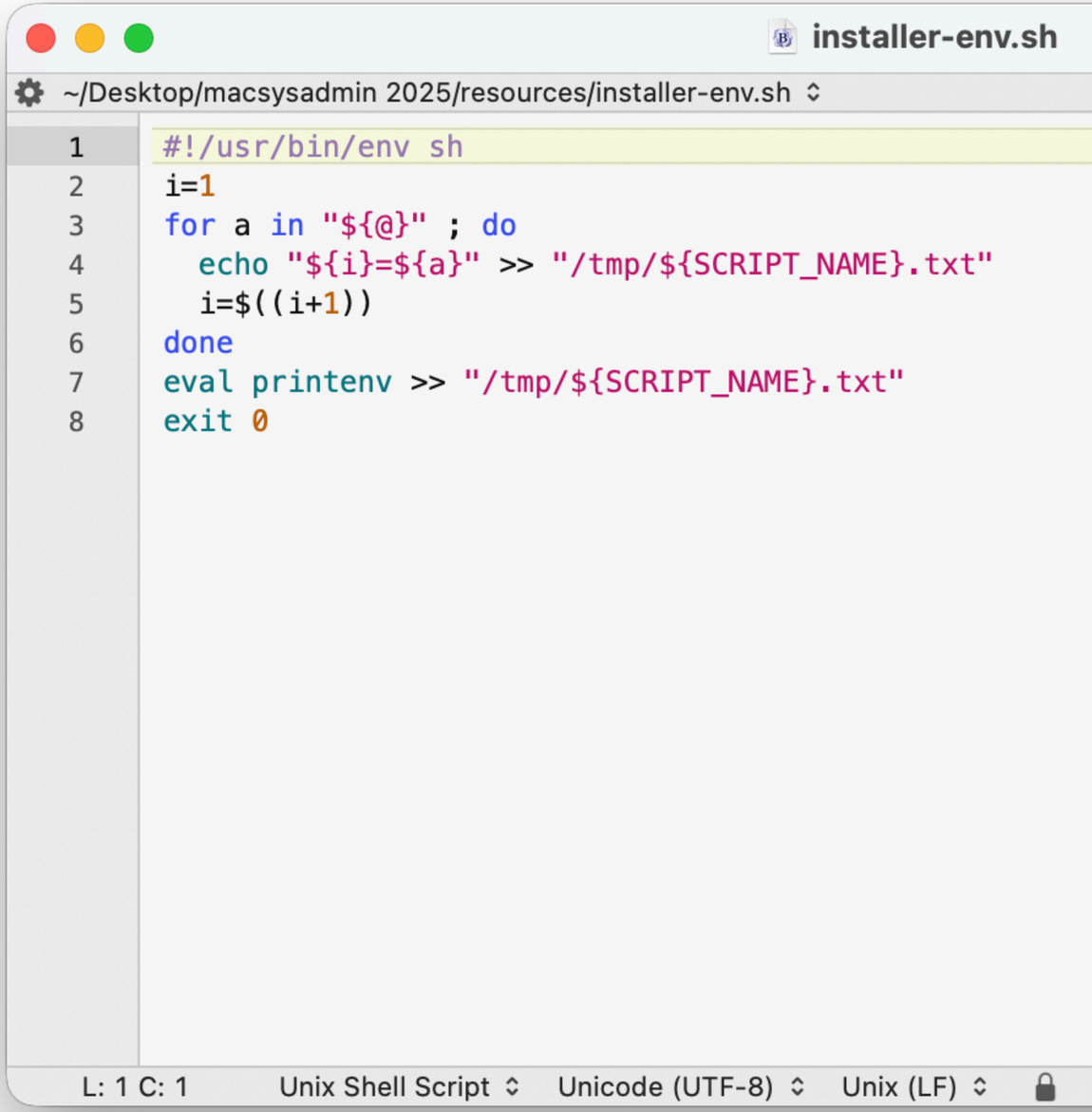
- <preinstall file="…">
- <postinstall file="…">
- component-id="…"



PackageInfo

<scripts>

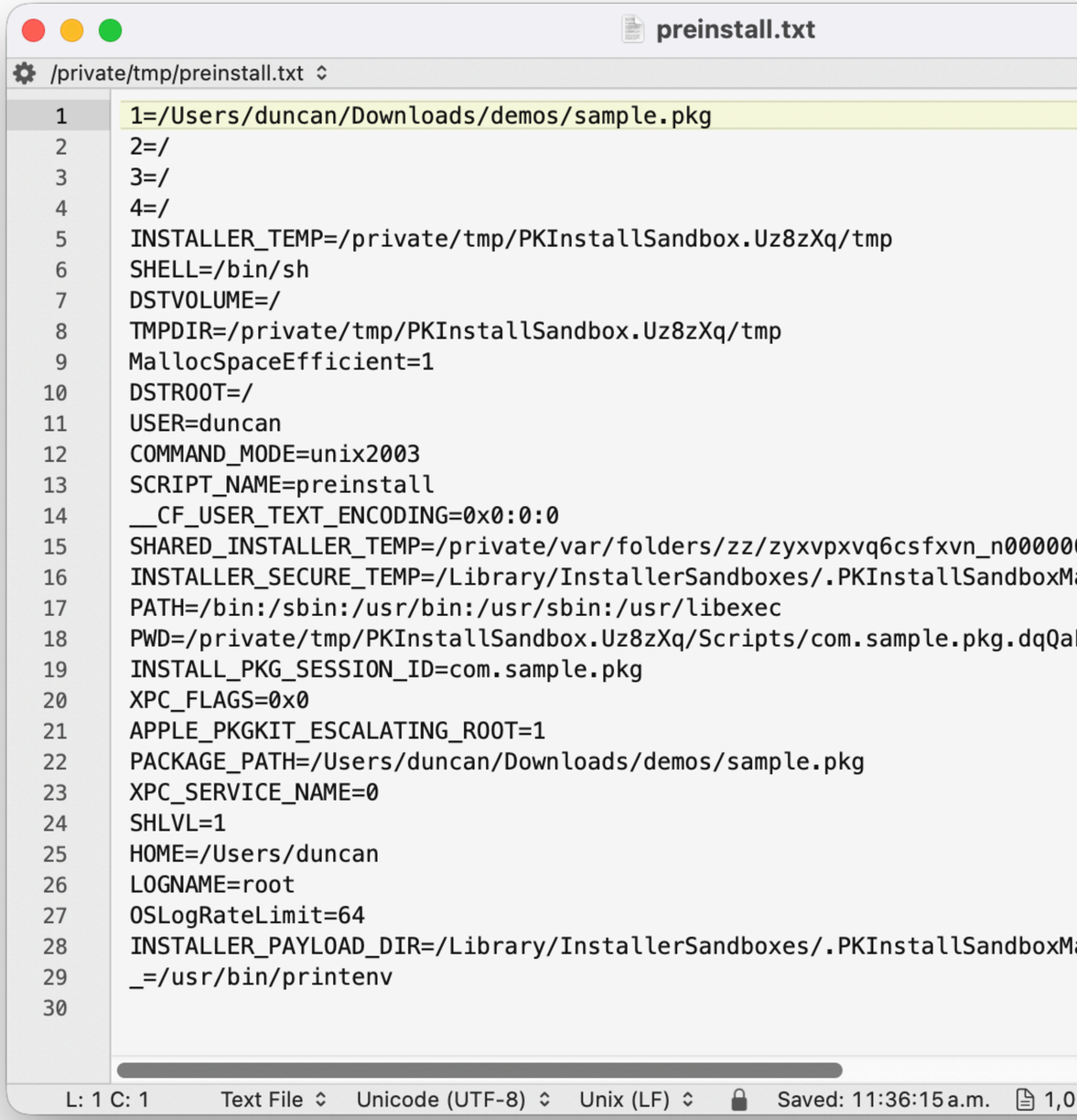
- **printenv**
- GUI
- CLI
- MDM
- App Store



PackageInfo

<scripts>

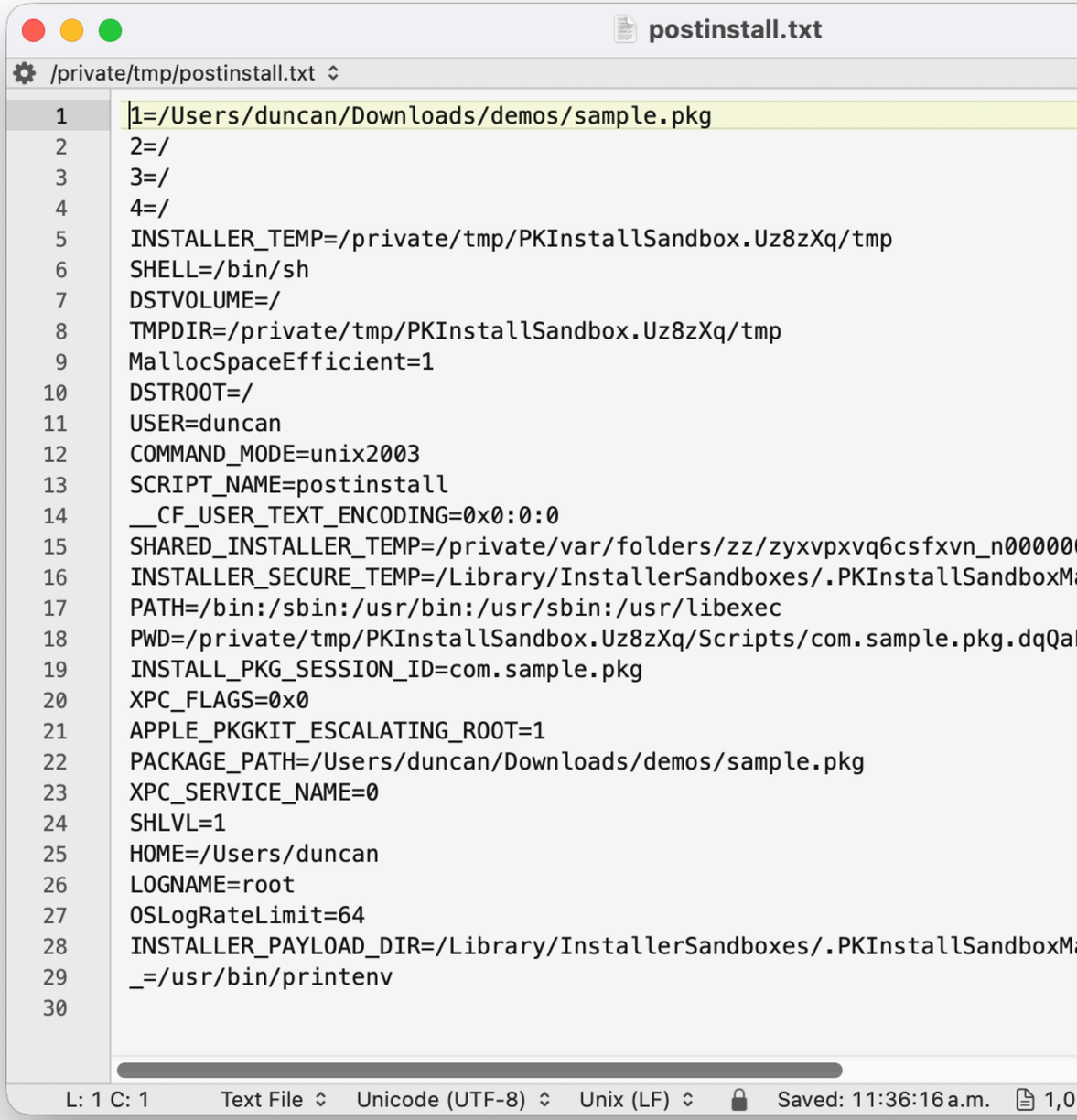
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- GUI
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PackageInfo

<scripts>

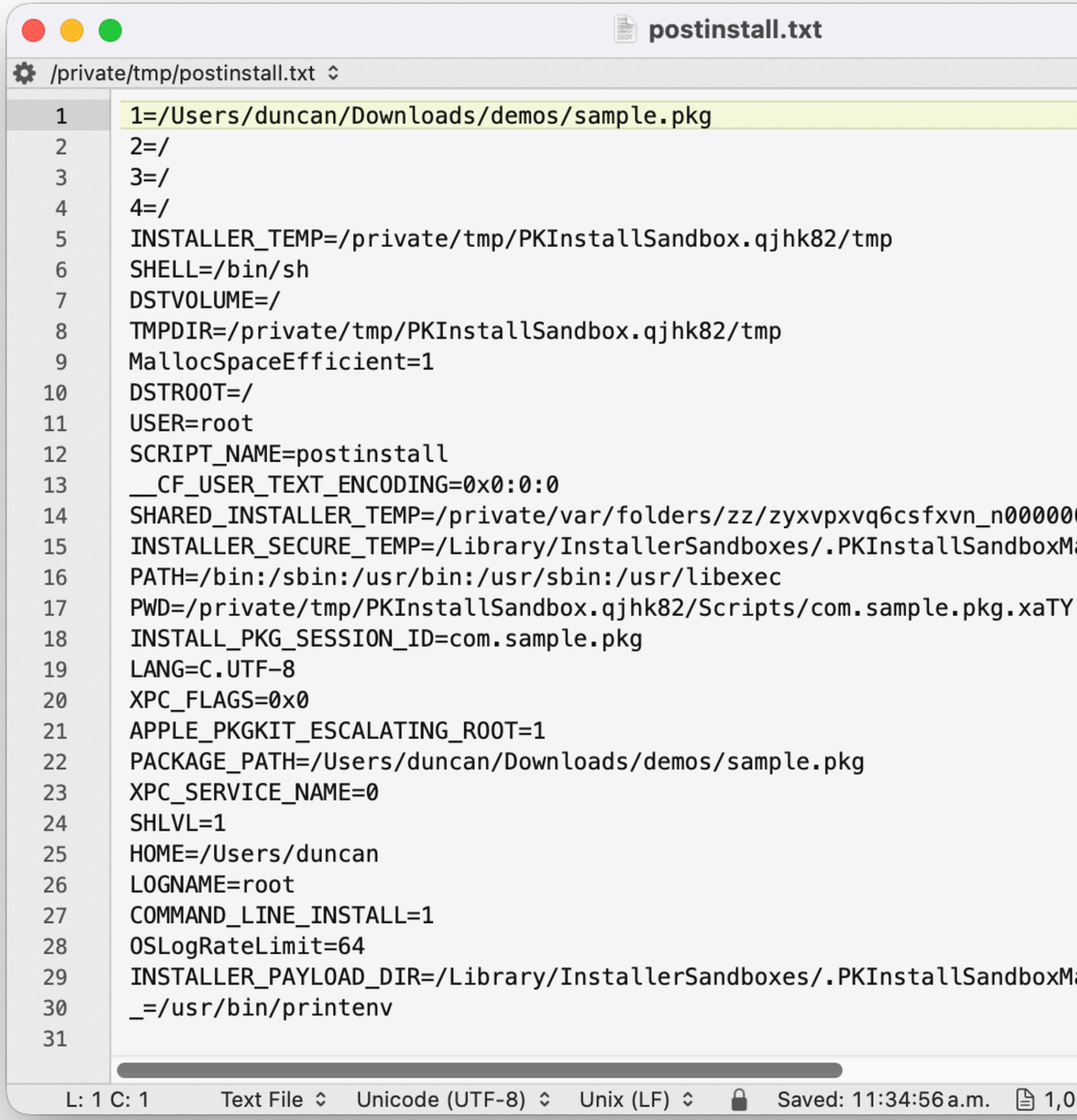
- printenv
- **GUI**
- CLI
- MDM
- App Store



PackageInfo

<scripts>

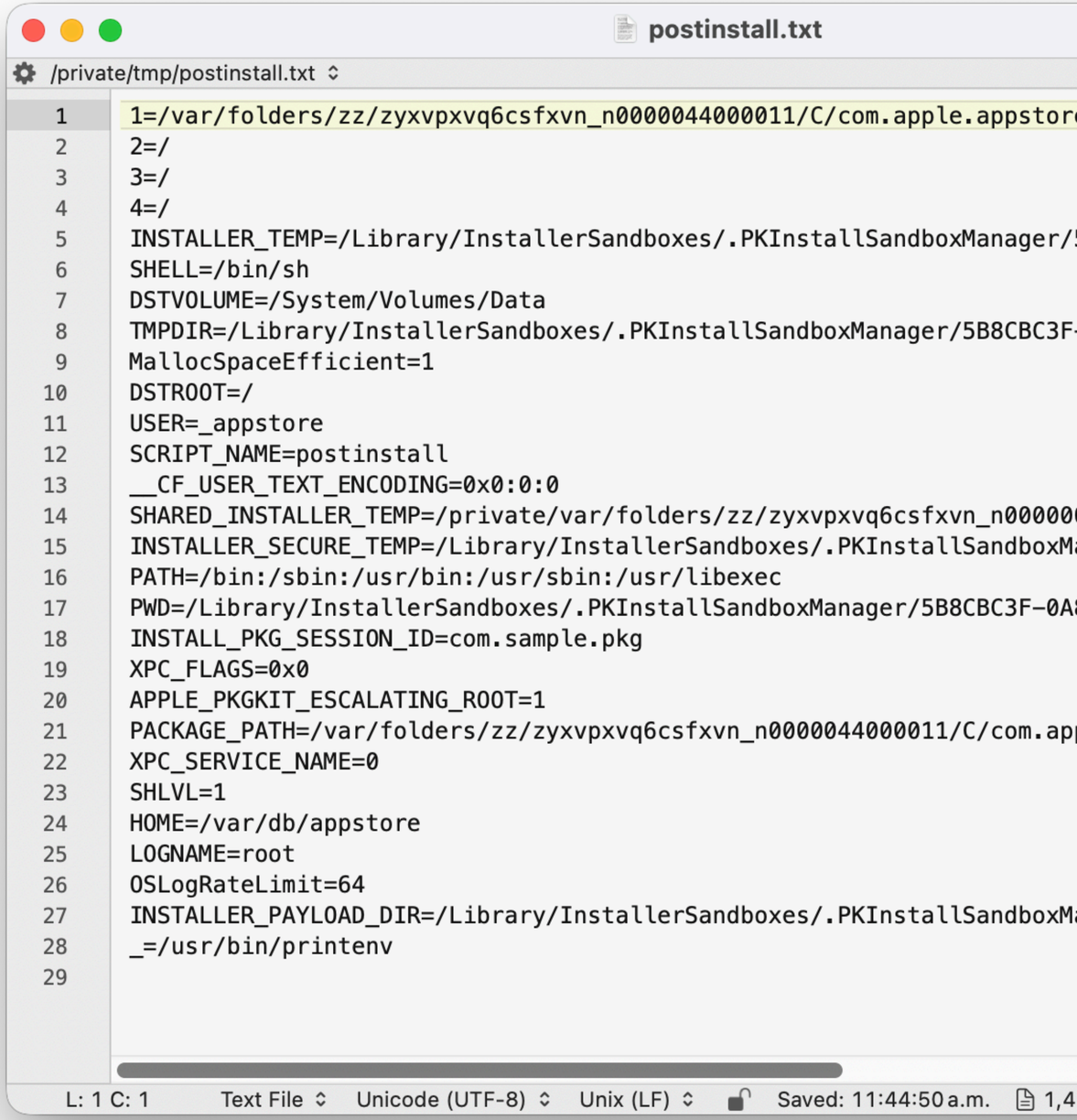
- printenv
- GUI
- **CLI**
- MDM
- App Store



PackageInfo

<scripts>

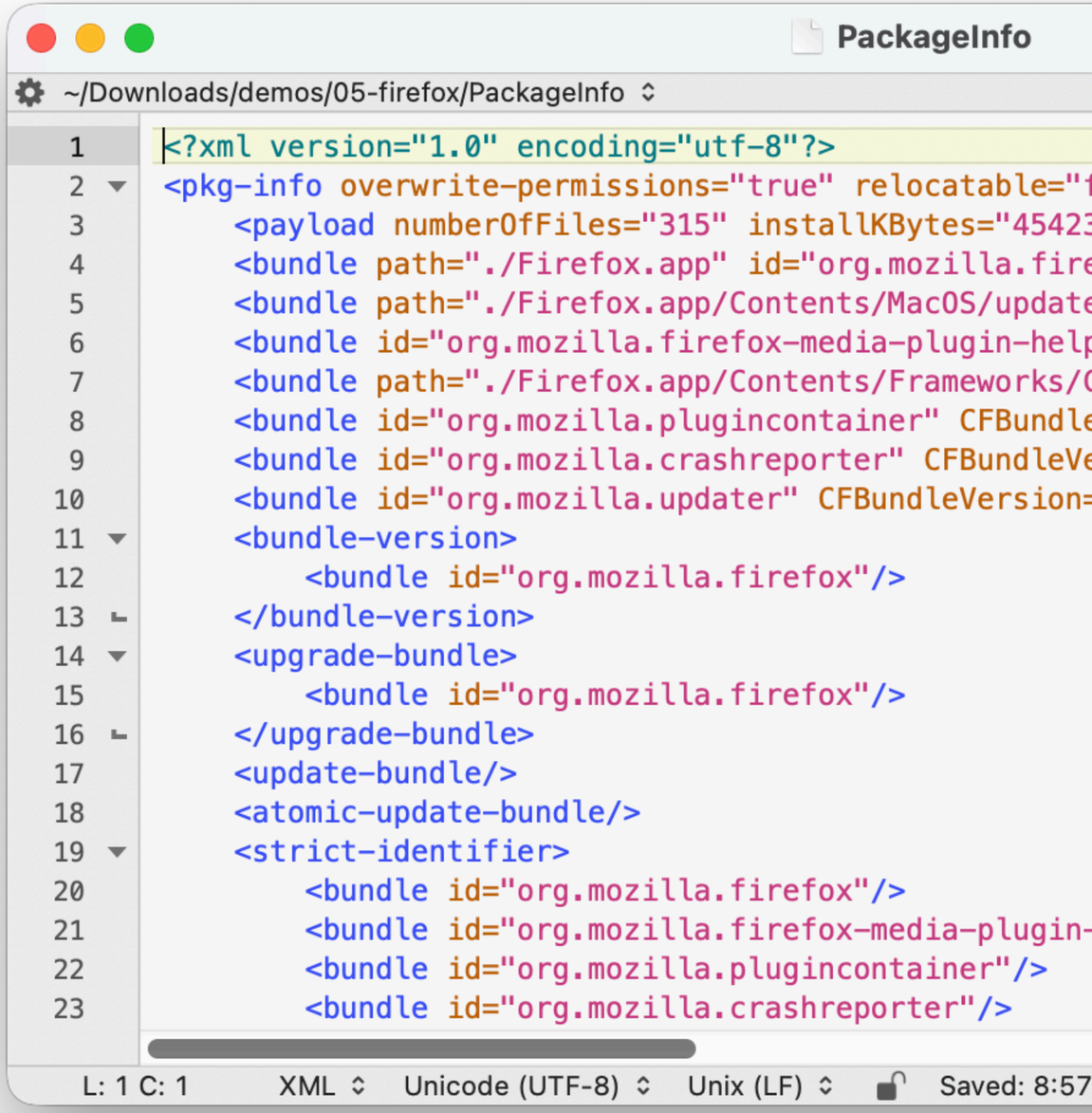
- printenv
- GUI
- CLI
- **MDM**
- App Store



PackageInfo

<bundle>

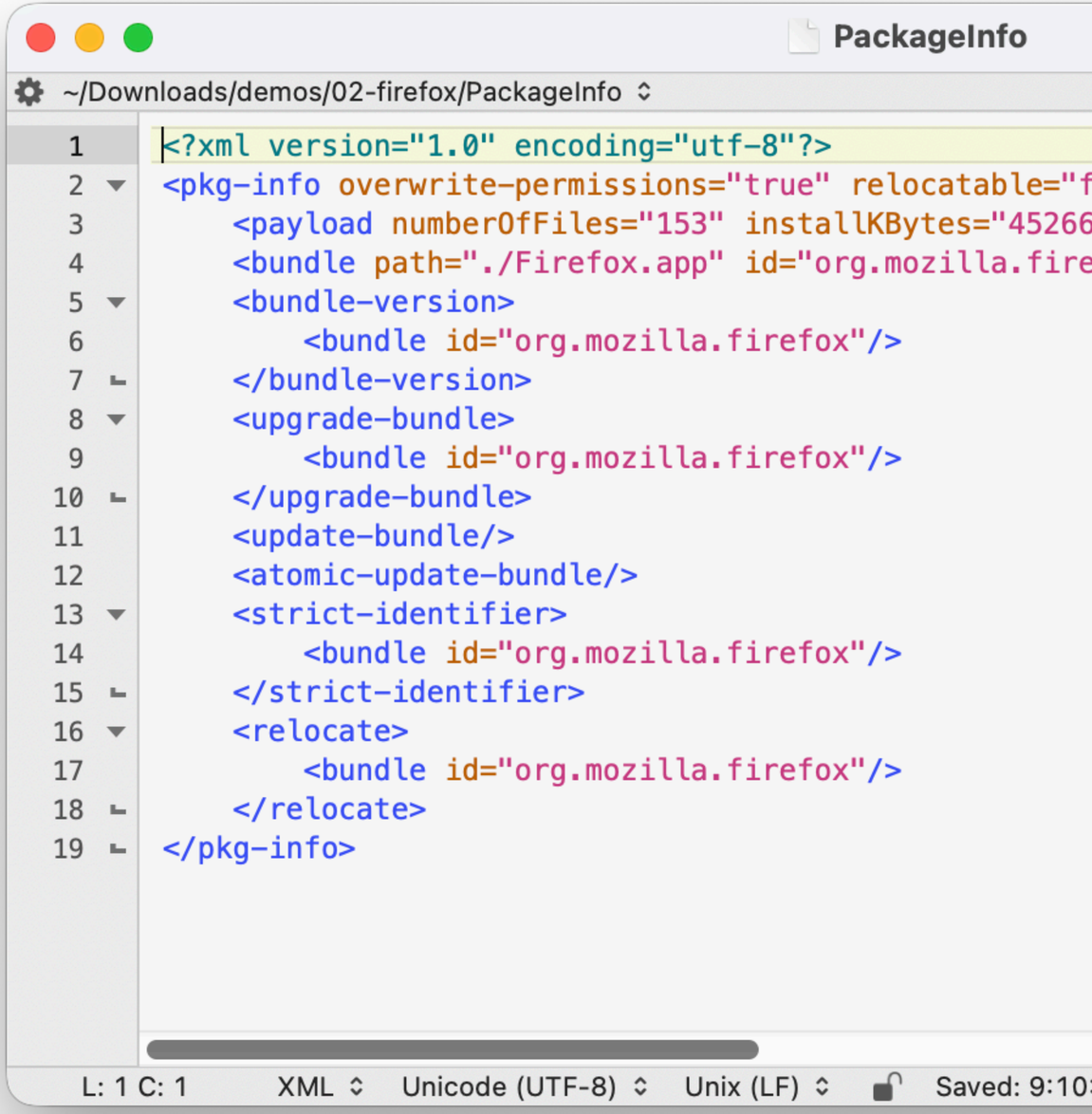
- path
- id
- CFBundleShortVersionString
- CFBundleVersion
- SourceVersion



PackageInfo

<bundle id="…">

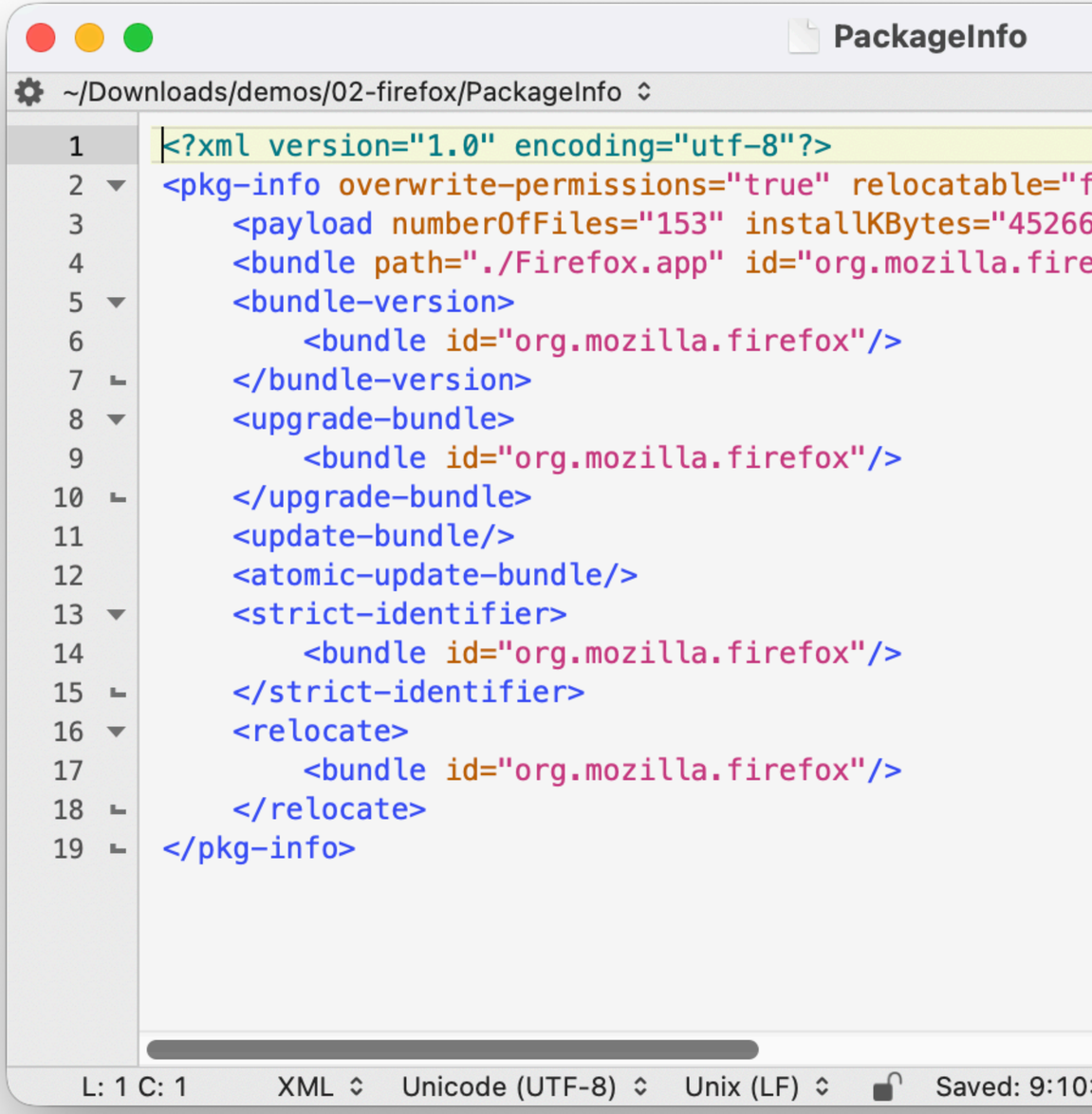
- <bundle-version>
- <upgrade-bundle>
- <update-bundle>
- <atomic-update-bundle>
- <strict-identifier>
- <relocate>



PackageInfo

<bundle id="…">

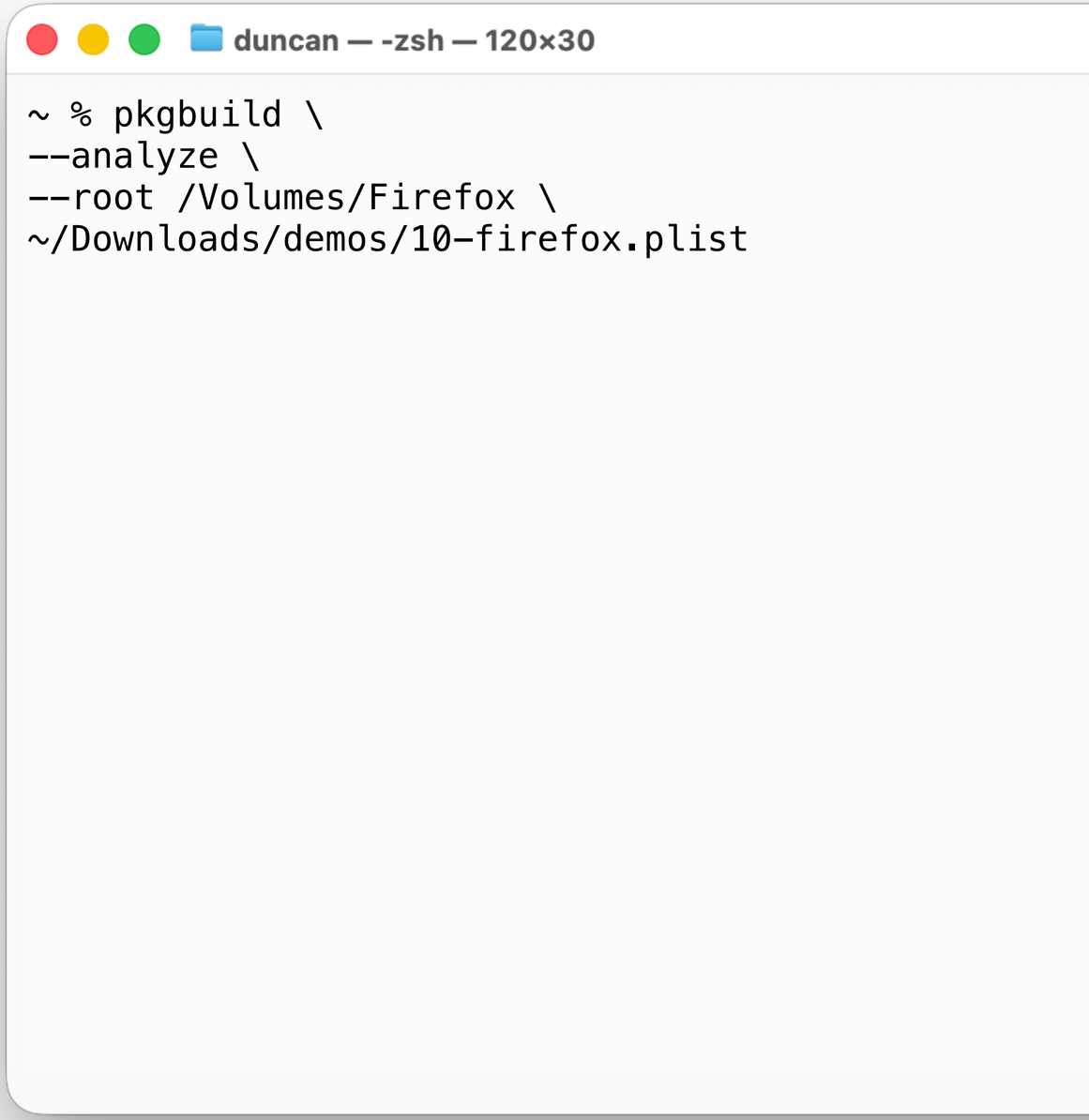
- **<bundle-version>**
- **<upgrade-bundle>**
- <update-bundle>
- <atomic-update-bundle>
- **<strict-identifier>**
- **<relocate>**



Analyse

component.plist

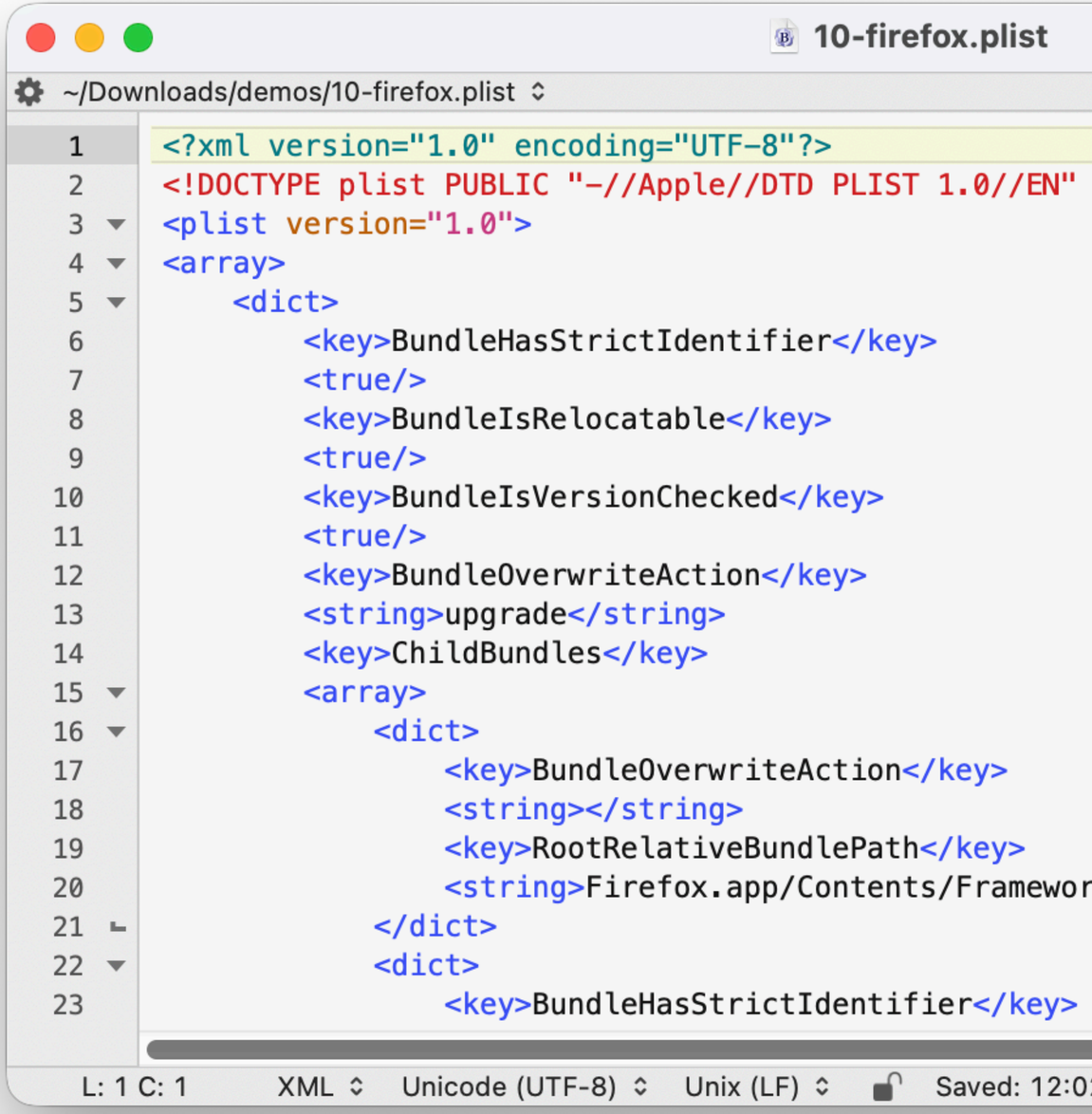
- RootRelativeBundlePath
- BundleIsRelocatable
- BundleIsVersionChecked
- BundleHasStrictIdentifier
- BundleOverwriteAction
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



Analyse

component.plist

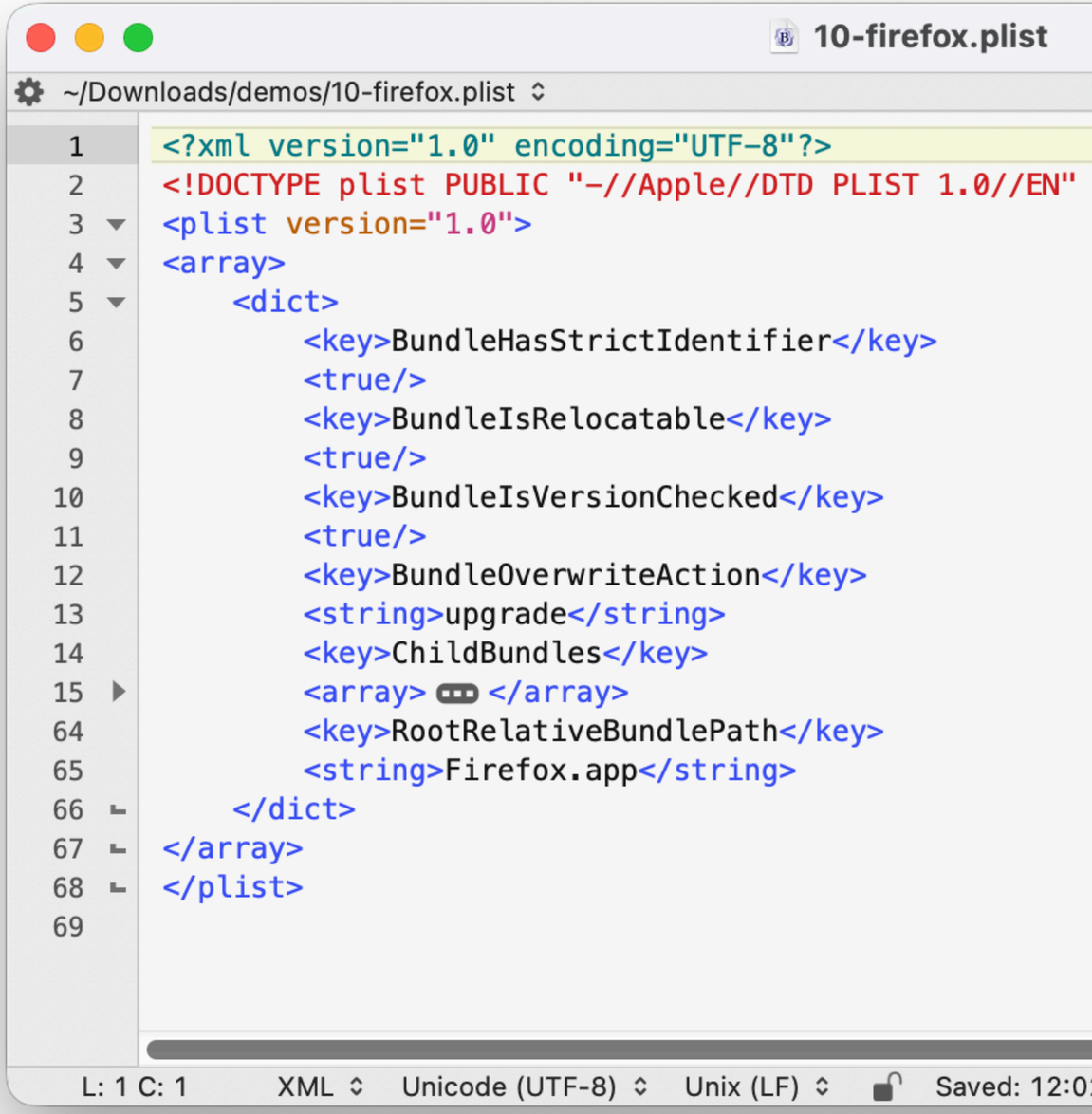
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Analyse

component.plist

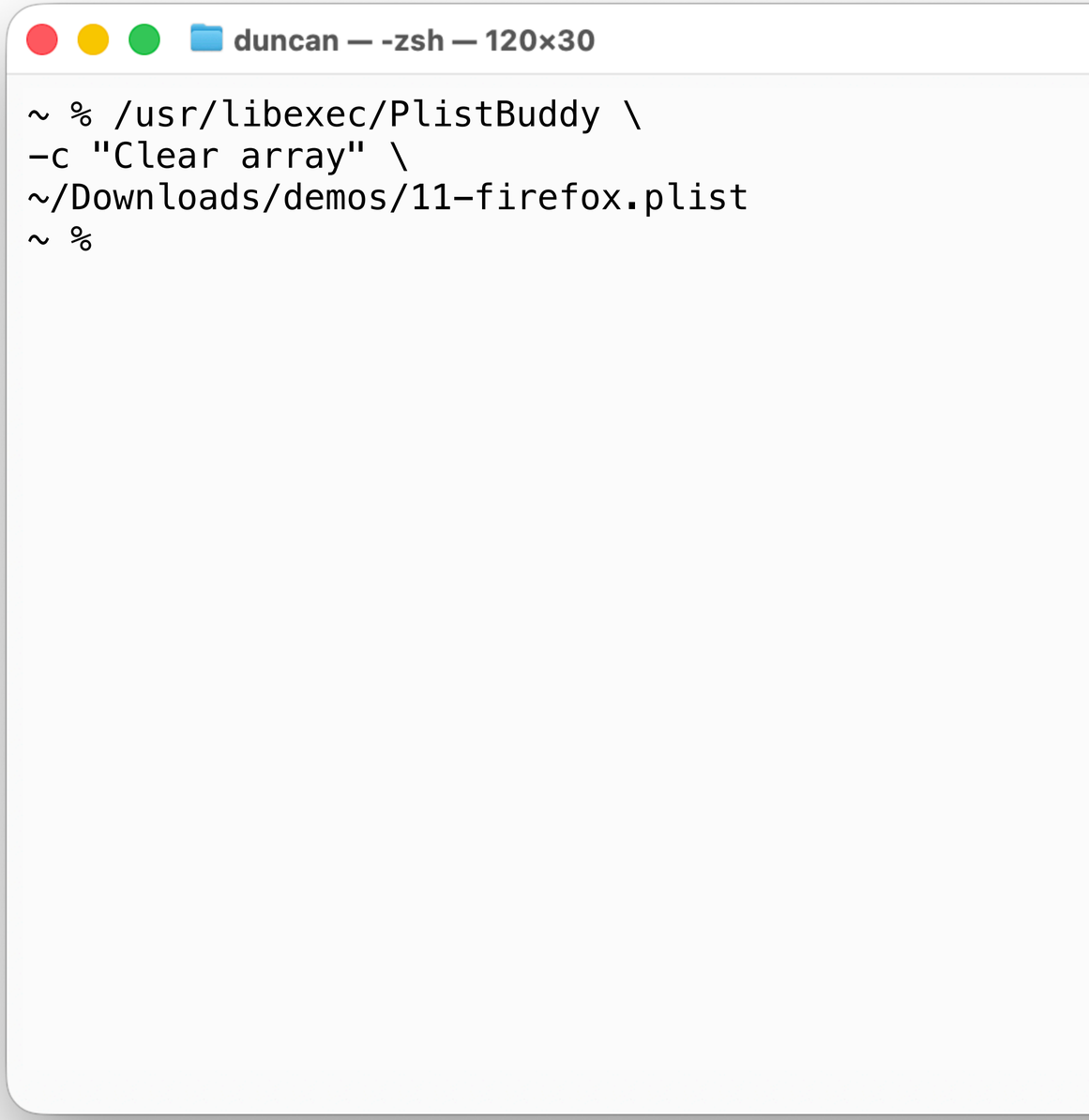
- **RootRelativeBundlePath**
- **BundleIsRelocatable**
- **BundleIsVersionChecked**
- **BundleHasStrictIdentifier**
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

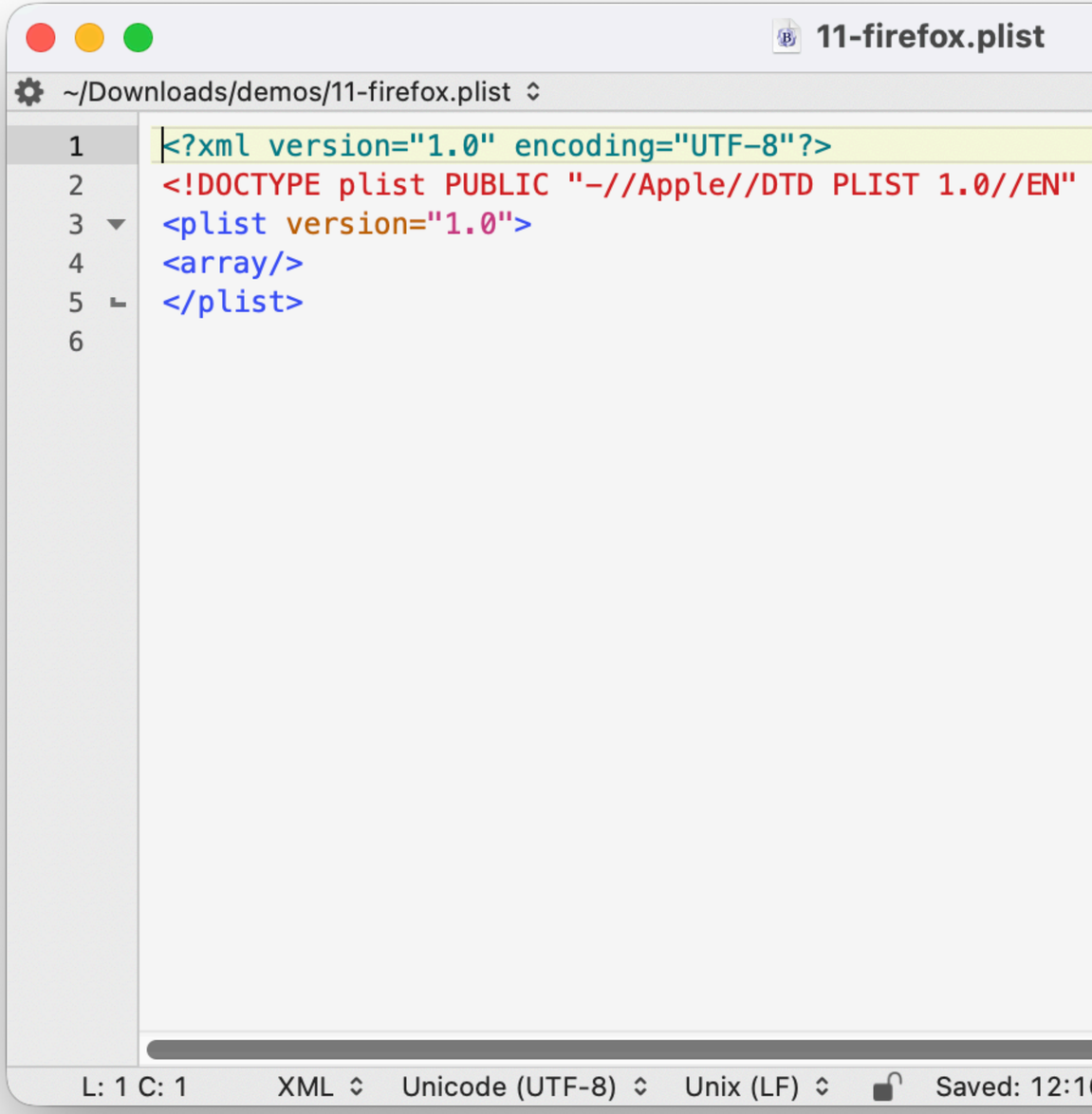
- RootRelativeBundlePath
- BundleIsRelocatable
- BundleIsVersionChecked
- BundleHasStrictIdentifier
- BundleOverwriteAction
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

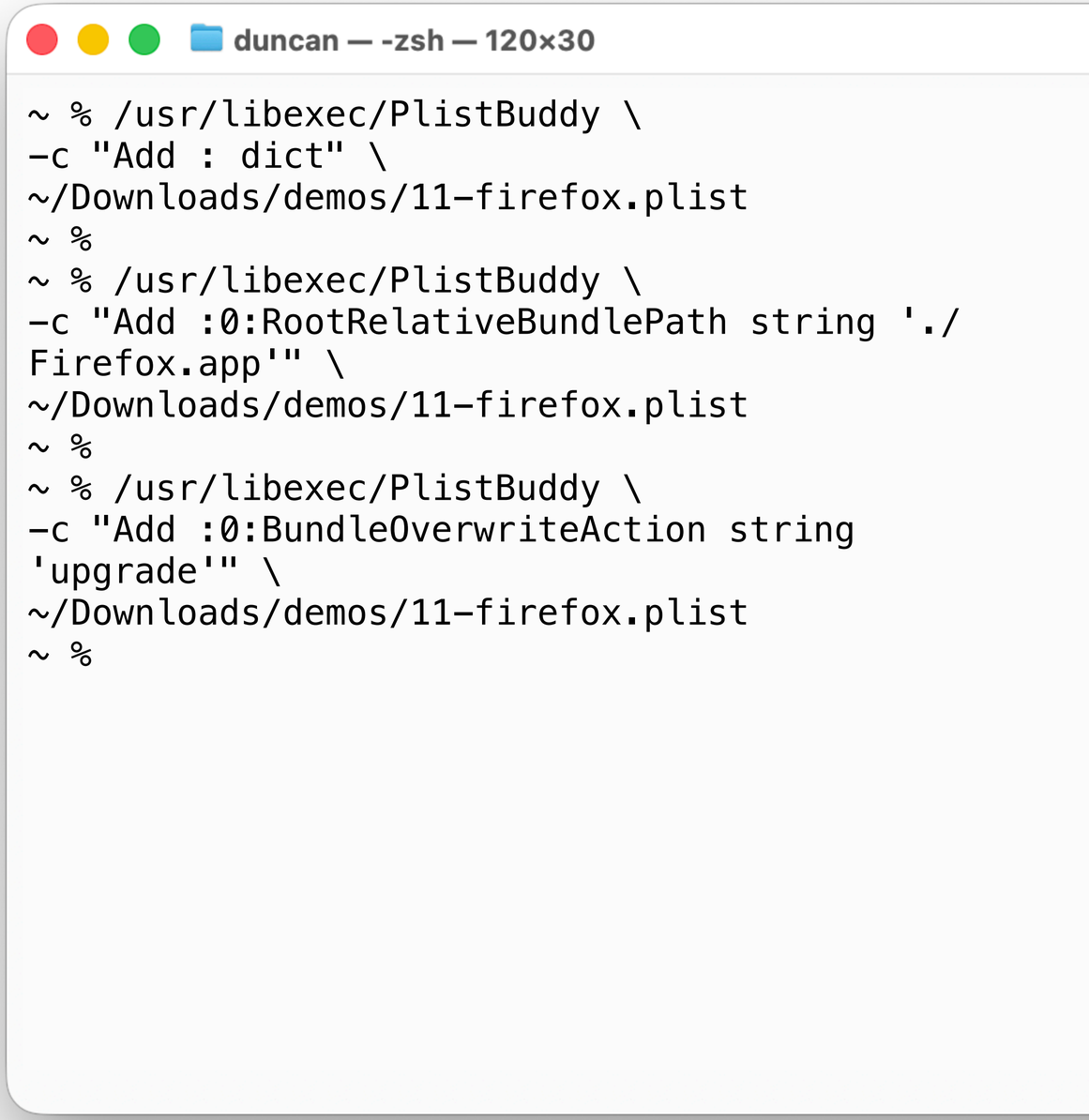
- RootRelativeBundlePath
- BundleIsRelocatable
- BundleIsVersionChecked
- BundleHasStrictIdentifier
- BundleOverwriteAction
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

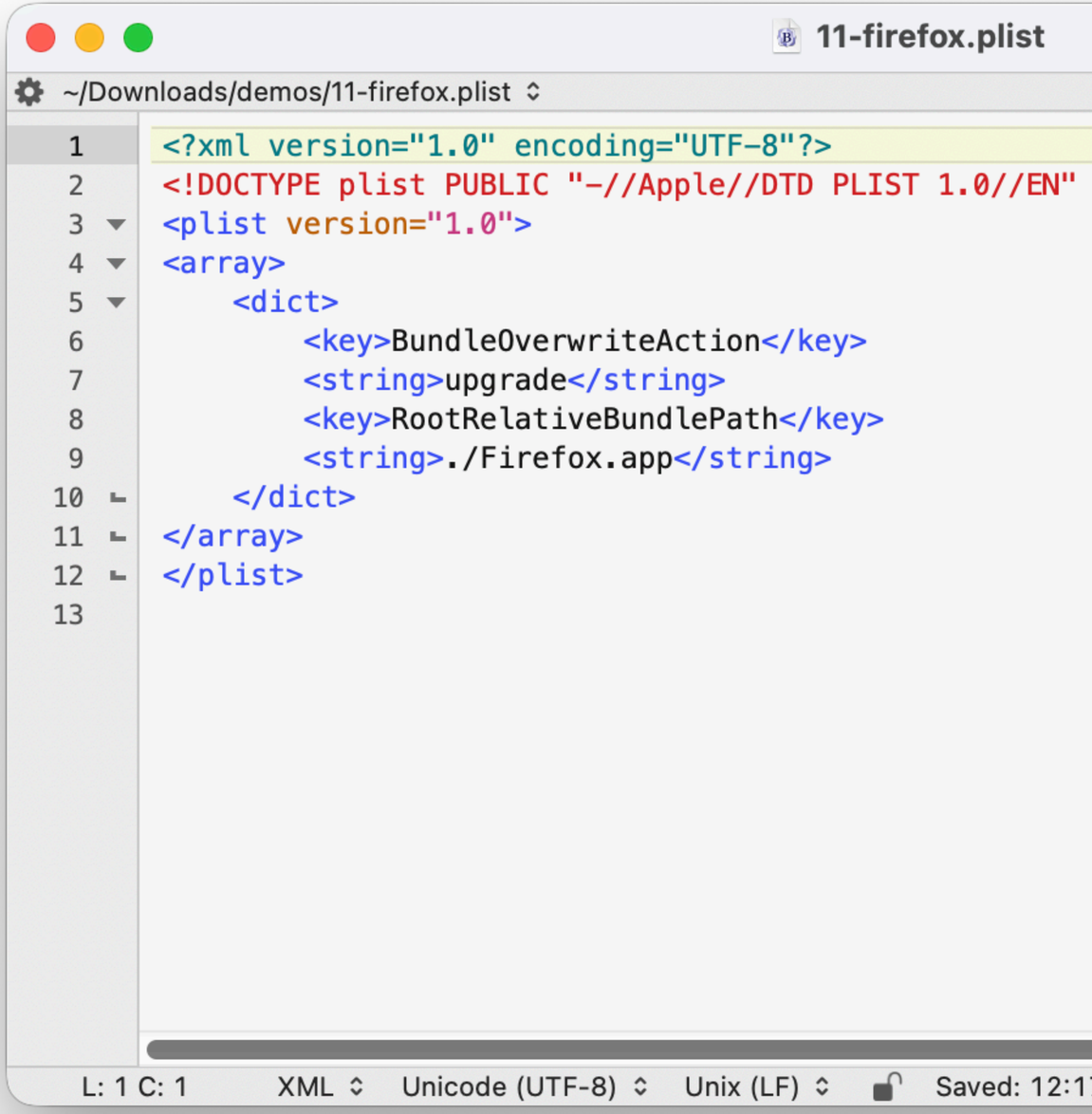
- **RootRelativeBundlePath**
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PlistBuddy

component.plist

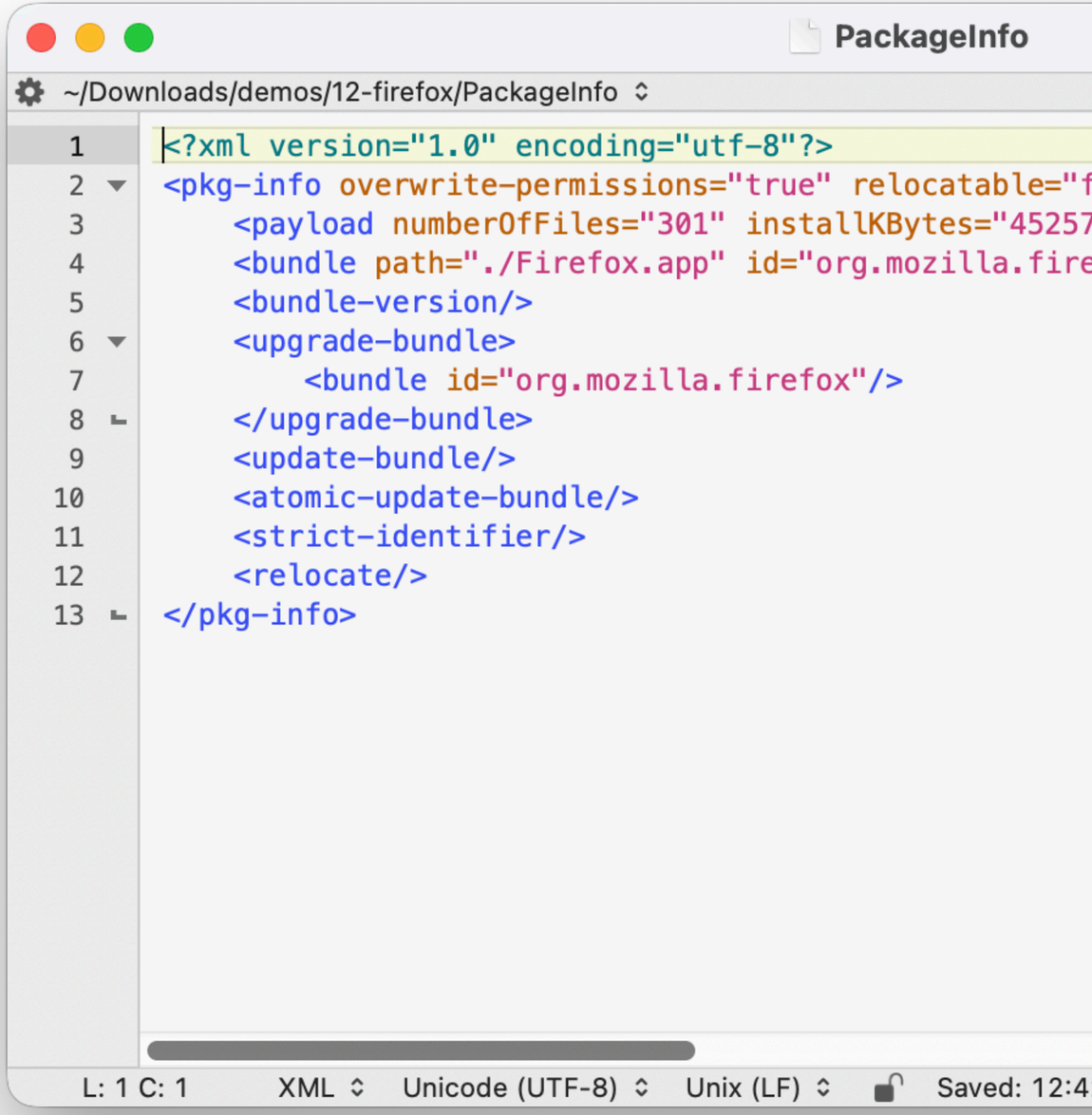
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- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
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PlistBuddy

component.plist

- **RootRelativeBundlePath**
- BundleIsRelocatable
- BundleIsVersionChecked
- BundleHasStrictIdentifier
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
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- ChildBundles

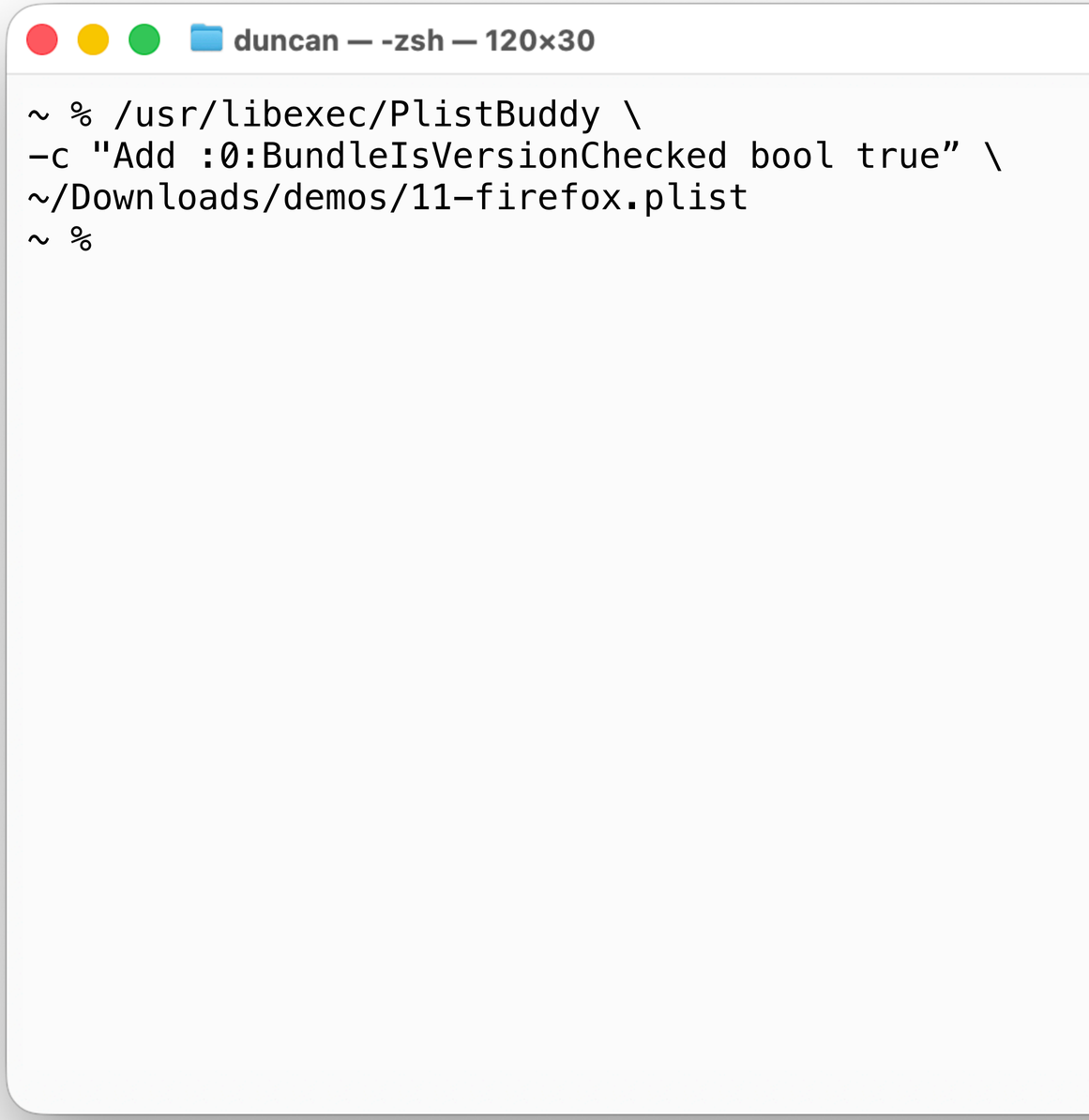


relocate	strict-identifier	bundle-version	location	none	older	equal	newer
0	0	0	default	install	downgrade	re-install	upgrade
0	0	1	default	install	dont-install	re-install	upgrade
0	1	0	default	install	downgrade	re-install	upgrade
0	1	1	default	install	dont-install	re-install	upgrade
1	0	0	default	install	downgrade	re-install	upgrade
1	0	1	default	install	dont-install	re-install	upgrade
1	1	0	default	install	downgrade	re-install	upgrade
1	1	1	default	install	dont-install	re-install	upgrade
0	0	0	conflict	-	replace-conflict	replace-conflict	replace-conflict
0	0	1	conflict	-	dont-install	replace-conflict	replace-conflict
0	1	0	conflict	-	localized-install	localized-install	localized-install
0	1	1	conflict	-	localized-install	localized-install	localized-install
1	0	0	conflict	-	replace-conflict	replace-conflict	replace-conflict
1	0	1	conflict	-	dont-install	replace-conflict	replace-conflict
1	1	0	conflict	-	localized-install	localized-install	localized-install
1	1	1	conflict	-	localized-install	localized-install	localized-install
0	0	0	custom	-	ignore-custom/install-default	ignore-custom/install-default	ignore-custom/install-default
0	0	1	custom	-	ignore-custom/install-default	ignore-custom/install-default	ignore-custom/install-default
0	1	0	custom	-	ignore-custom/install-default	ignore-custom/install-default	ignore-custom/install-default
0	1	1	custom	-	ignore-custom/install-default	ignore-custom/install-default	ignore-custom/install-default
1	0	0	custom	-	downgrade-custom	re-install-custom	upgrade-custom
1	0	1	custom	-	dont-install	re-install-custom	upgrade-custom
1	1	0	custom	-	downgrade-custom	re-install-custom	upgrade-custom
1	1	1	custom	-	dont-install	re-install-custom	upgrade-custom
0	0	0	conflict/custom	-	replace-conflict	replace-conflict	replace-conflict
0	0	1	conflict/custom	-	dont-install	replace-conflict	replace-conflict
0	1	0	conflict/custom	-	localized-install	localized-install	localized-install
0	1	1	conflict/custom	-	localized-install	localized-install	localized-install
1	0	0	conflict/custom	-	replace-conflict	replace-conflict	replace-conflict
1	0	1	conflict/custom	-	dont-install	replace-conflict	replace-conflict
1	1	0	conflict/custom	-	localized-install	localized-install	localized-install
1	1	1	conflict/custom	-	dont-install	re-install-localized(custom)	upgrade-localized(custom)

PlistBuddy

component.plist

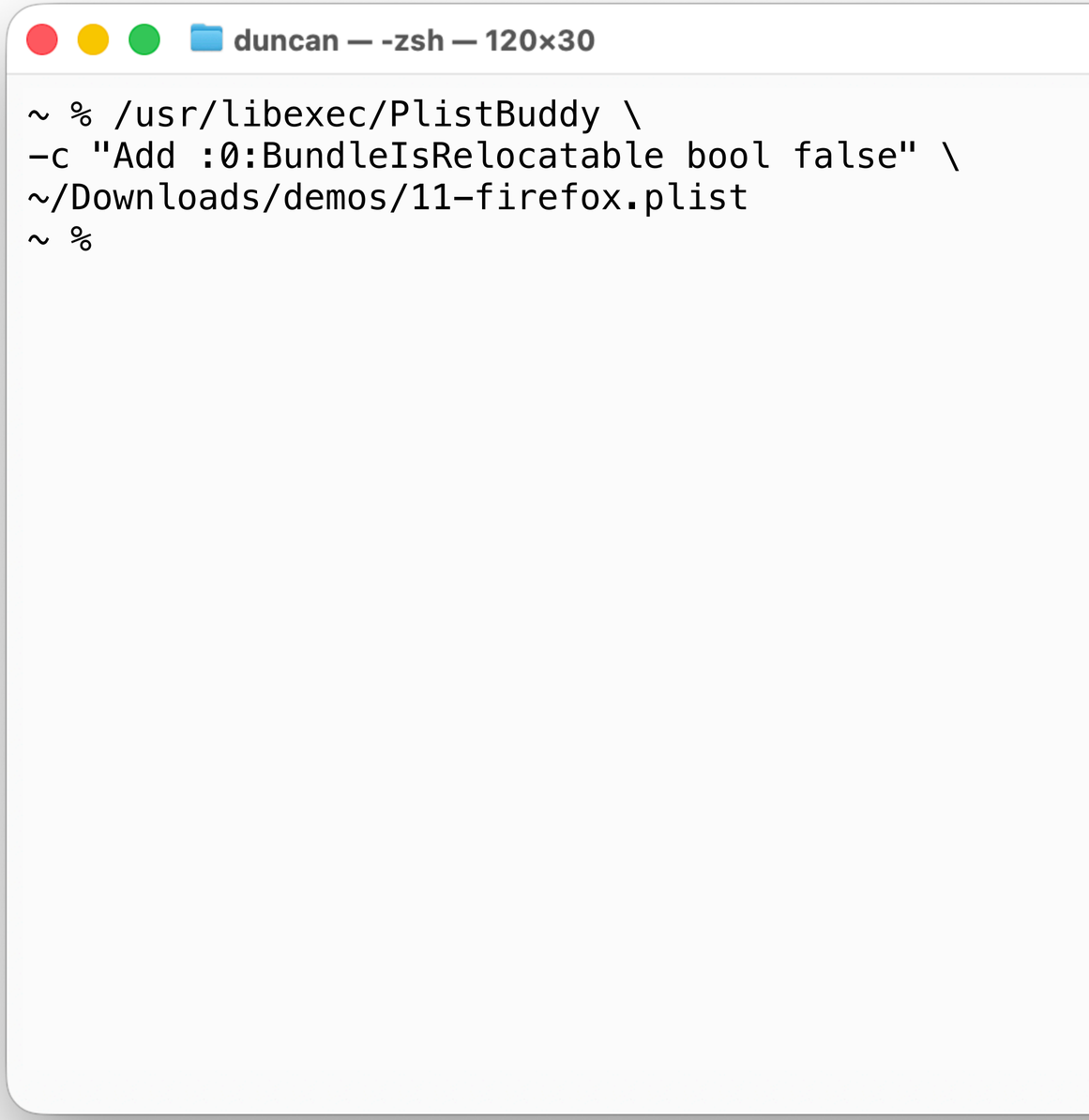
- **RootRelativeBundlePath**
- BundleIsRelocatable
- **BundleIsVersionChecked**
- BundleHasStrictIdentifier
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

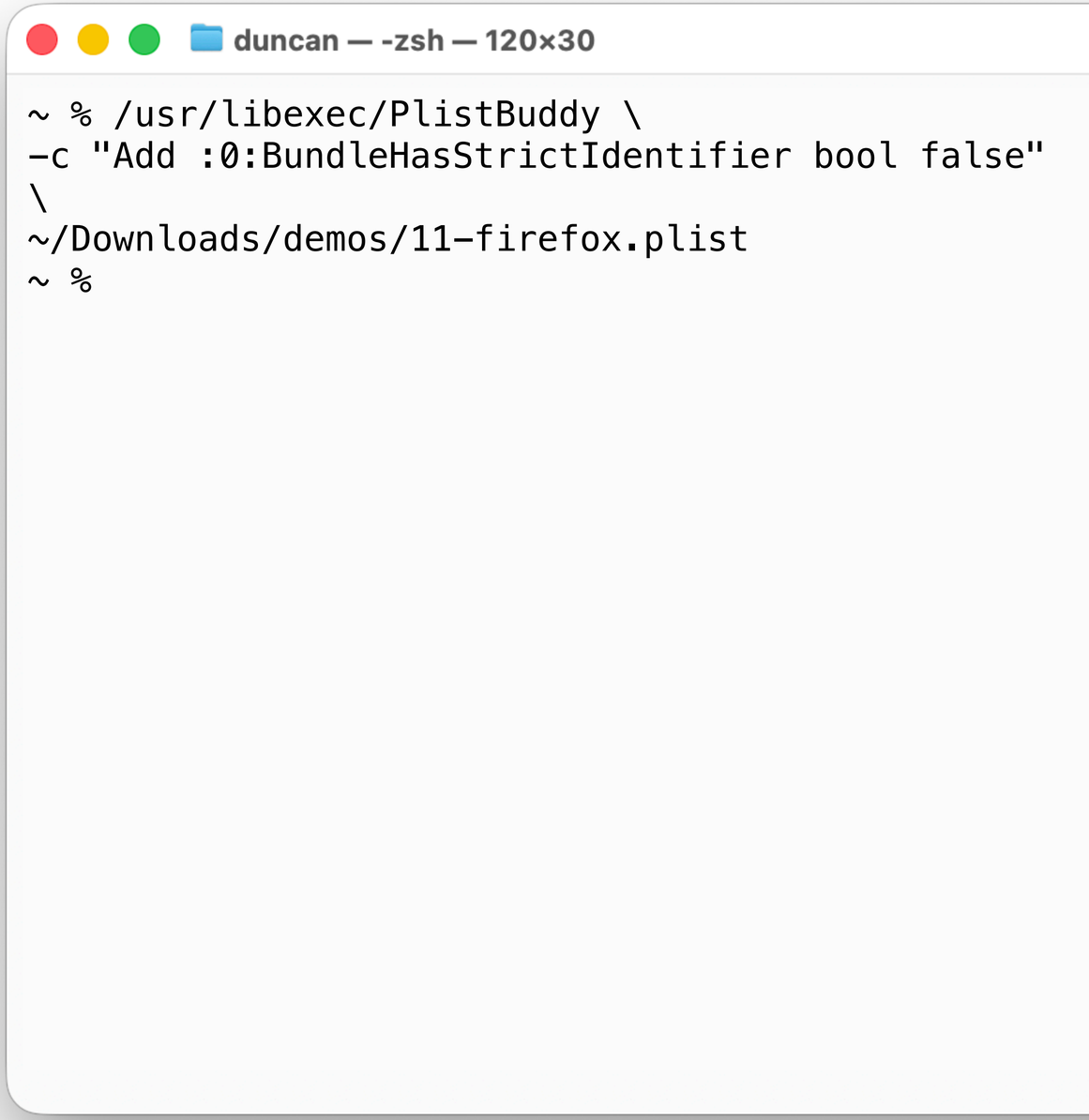
- **RootRelativeBundlePath**
- **BundleIsRelocatable**
- BundleIsVersionChecked
- BundleHasStrictIdentifier
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

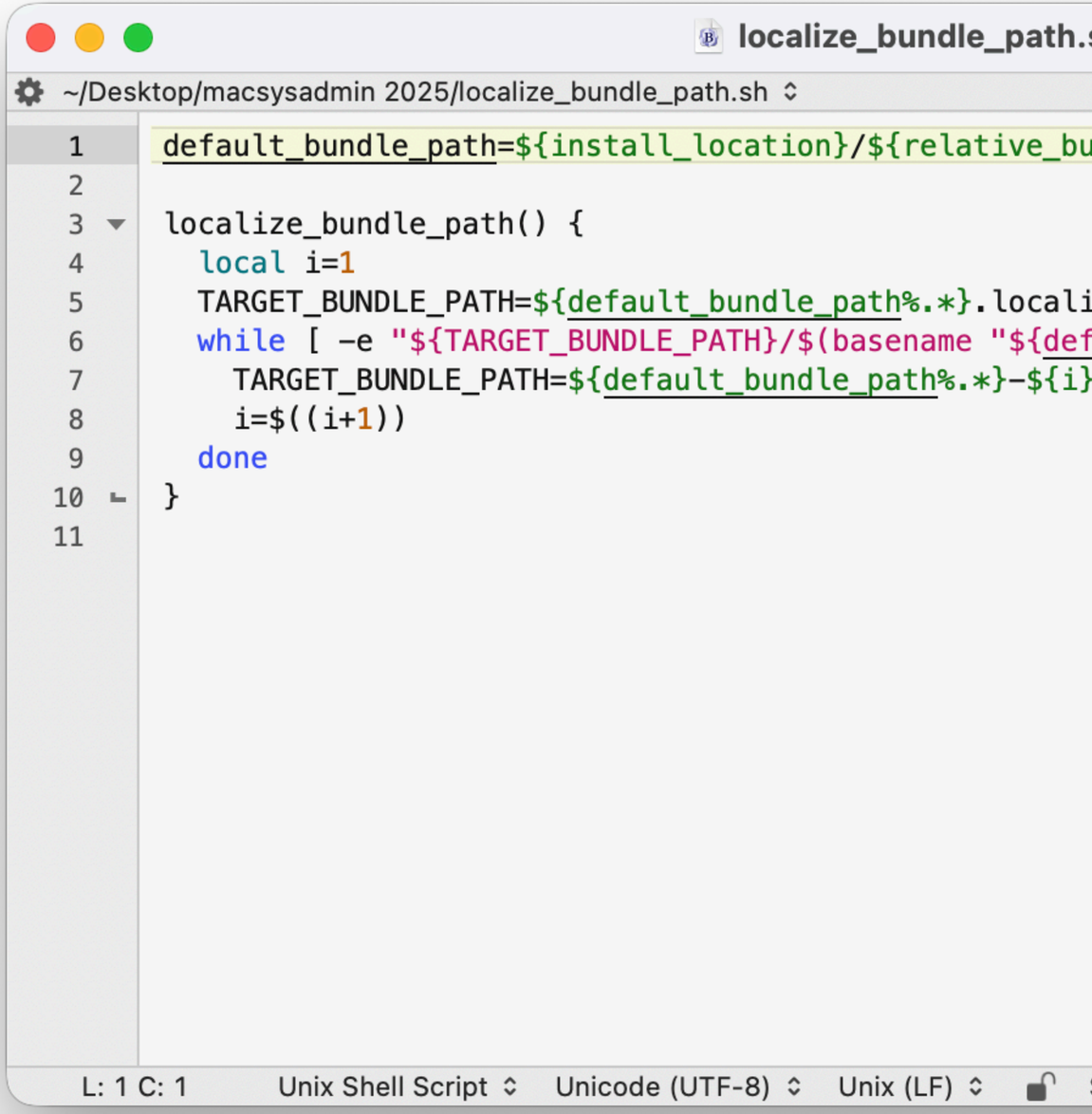
- **RootRelativeBundlePath**
- BundleIsRelocatable
- BundleIsVersionChecked
- **BundleHasStrictIdentifier**
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles

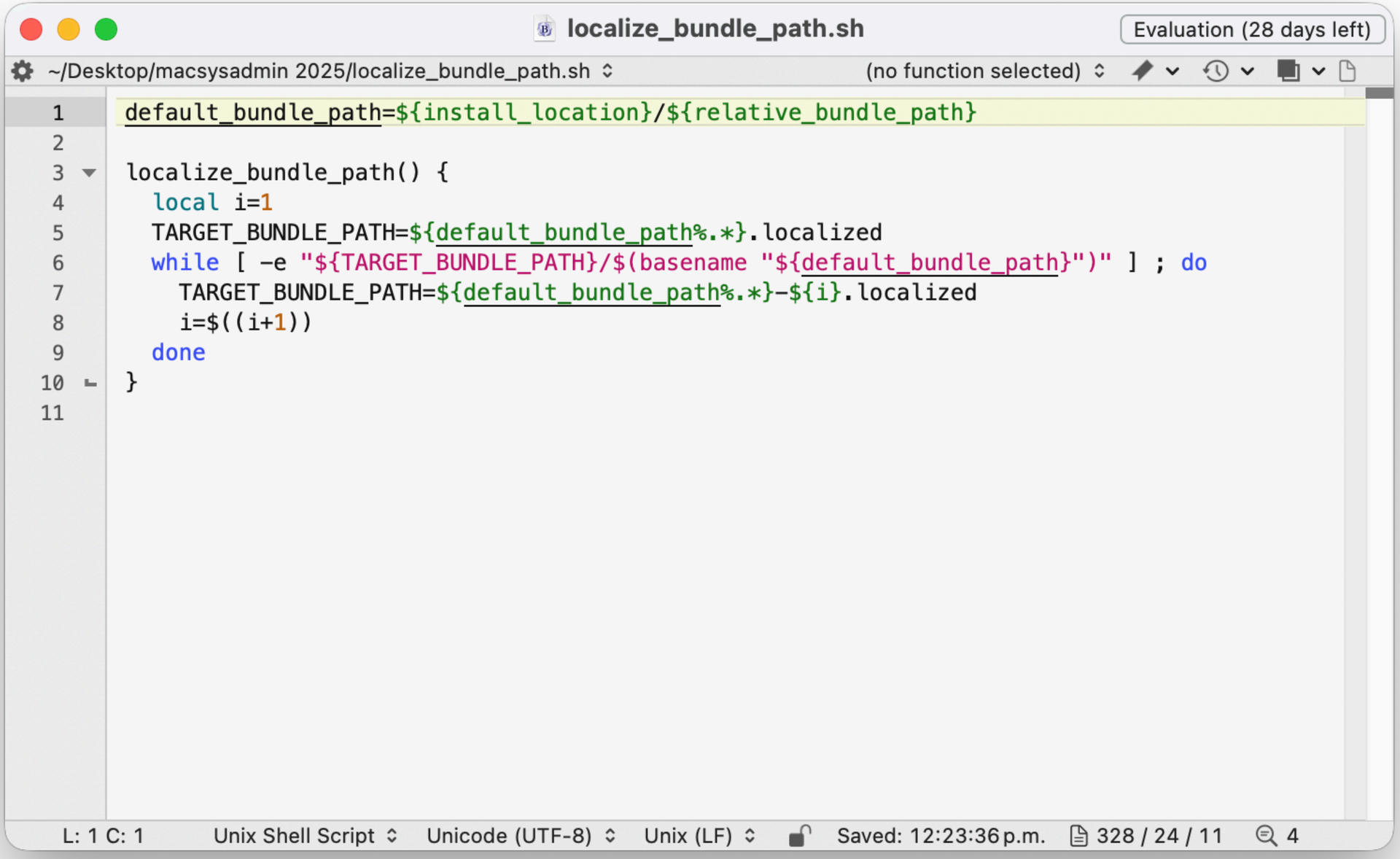


Localized Install

Bundle id conflict

- **RootRelativeBundlePath**
- BundleIsRelocatable
- BundleIsVersionChecked
- **BundleHasStrictIdentifier**
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles

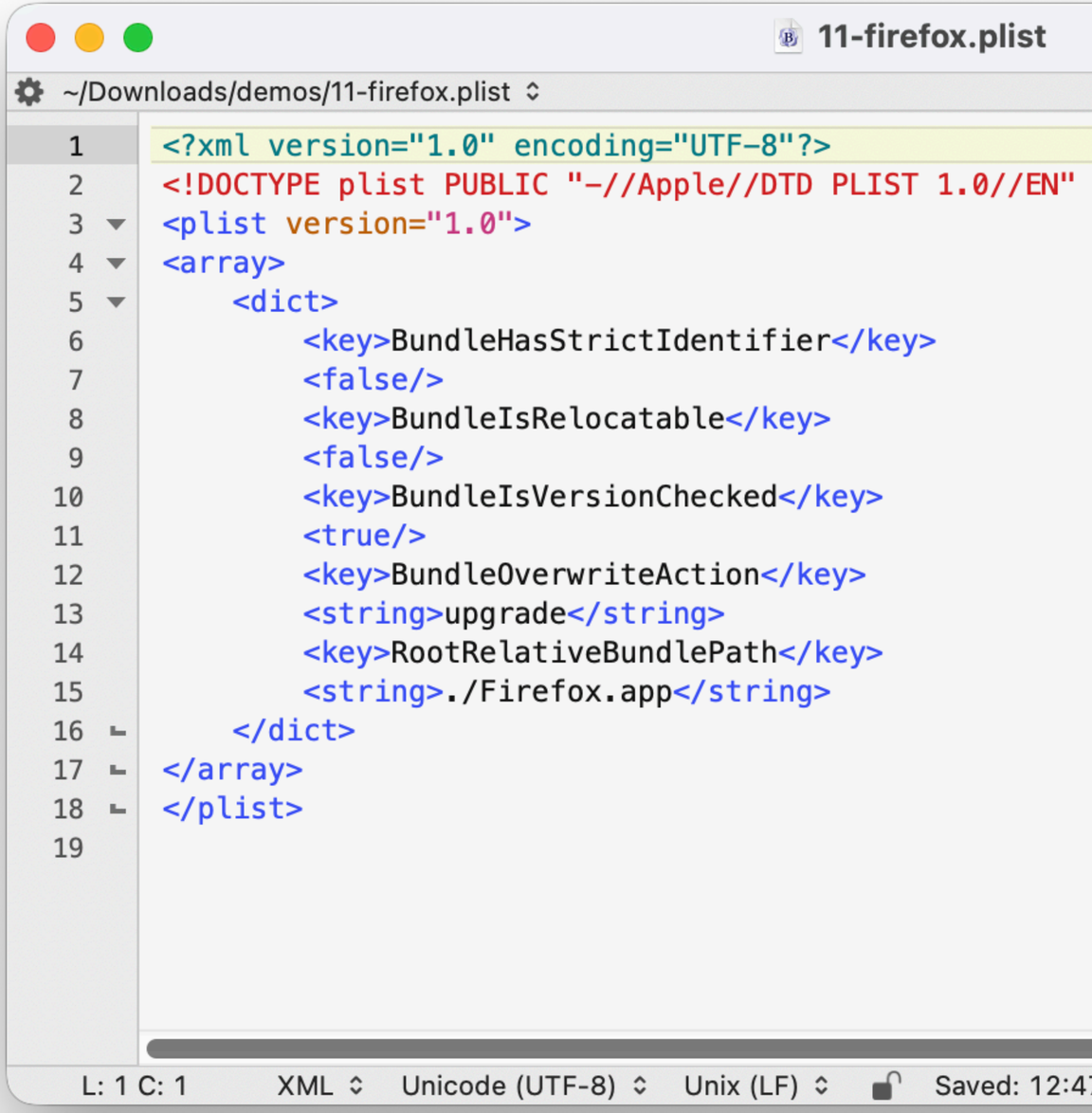



localize_bundle_path.sh
Evaluation (28 days left)
~/Desktop/macsysadmin 2025/localize_bundle_path.sh
(no function selected)
default_bundle_path=${install_location}/${relative_bundle_path}
localize_bundle_path() {
local i=1
TARGET_BUNDLE_PATH=${default_bundle_path%.*}.localized
while [-e "${TARGET_BUNDLE_PATH}/$(basename "${default_bundle_path}")"] ; do
TARGET_BUNDLE_PATH=${default_bundle_path%.*}-${i}.localized
i=$((i+1))
done
}
L: 1 C: 1
Unix Shell Script
Unicode (UTF-8)
Unix (LF)
Saved: 12:23:36 p.m.
328 / 24 / 11
4

PlistBuddy

component.plist

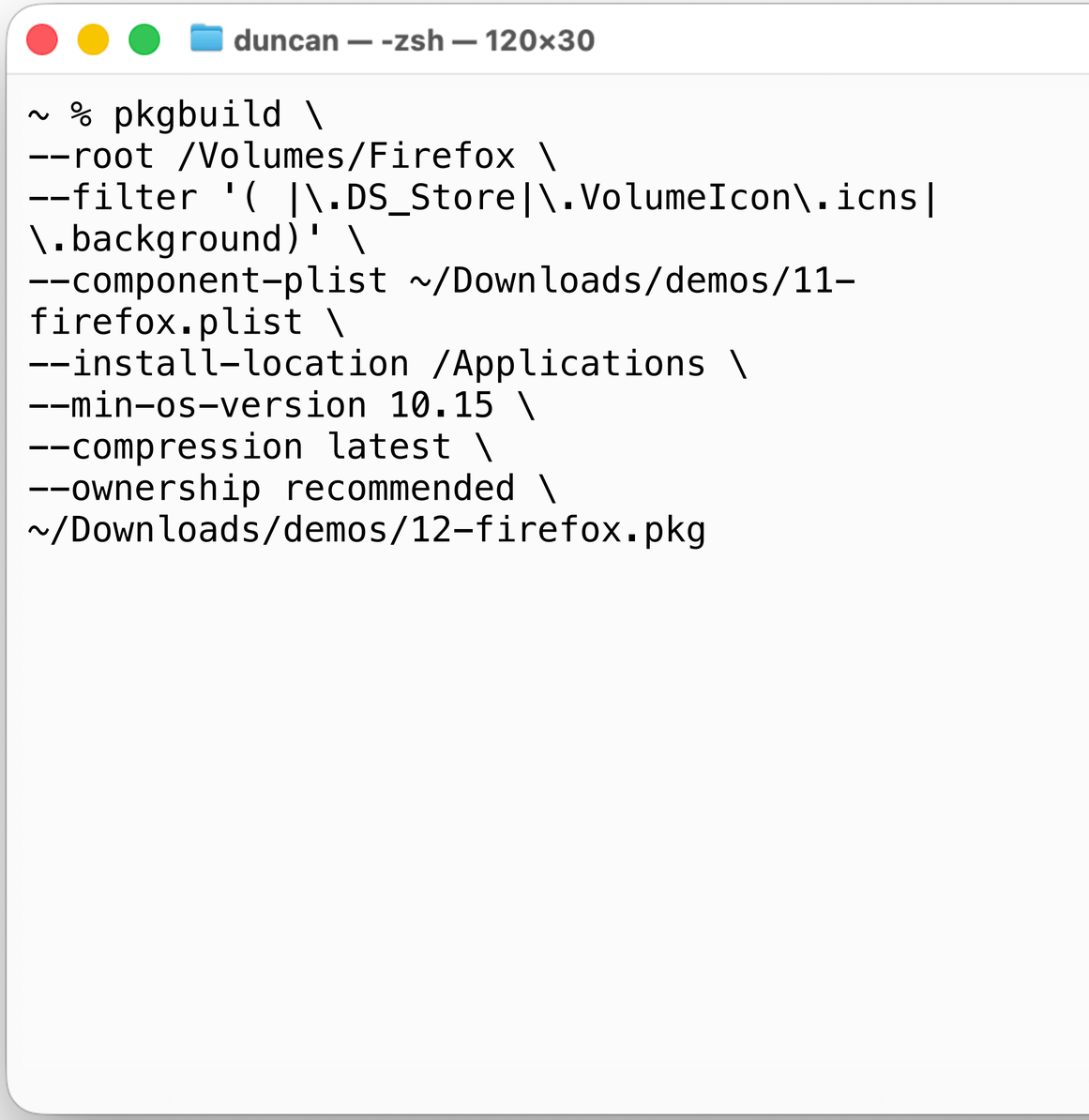
- **RootRelativeBundlePath**
- **BundleIsRelocatable**
- **BundleIsVersionChecked**
- **BundleHasStrictIdentifier**
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

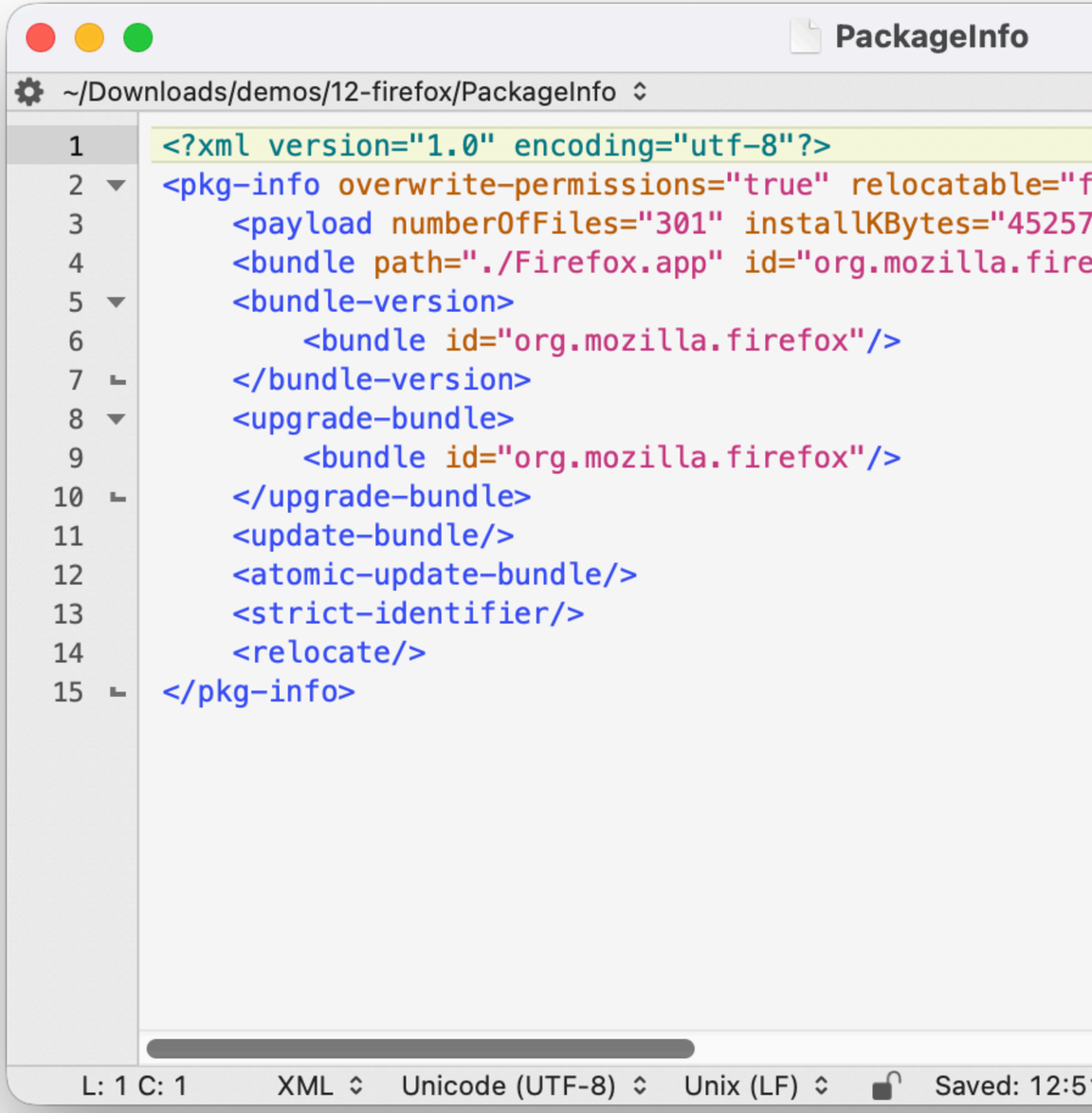
- **RootRelativeBundlePath**
- **BundleIsRelocatable**
- **BundleIsVersionChecked**
- **BundleHasStrictIdentifier**
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



PlistBuddy

component.plist

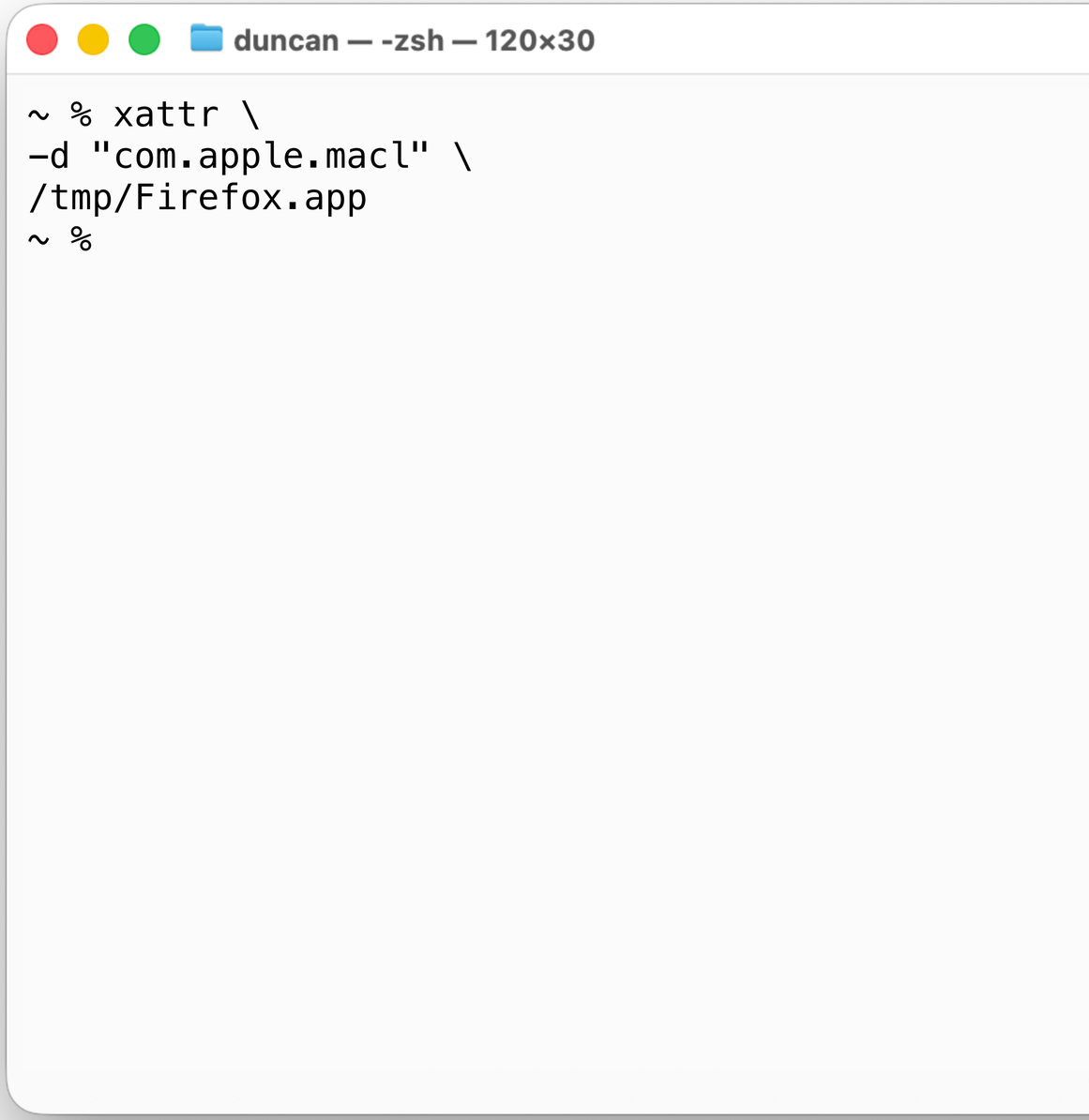
- **RootRelativeBundlePath**
- **BundleIsRelocatable**
- **BundleIsVersionChecked**
- **BundleHasStrictIdentifier**
- **BundleOverwriteAction**
- BundlePreInstallScriptPath
- BundlePostInstallScriptPath
- BundleInstallScriptTimeout
- ChildBundles



Extended Attributes

Removal*

- com.apple.macl
- com.apple.quarantine
- com.apple.provenance



Reference

~ % man pkgbuild

Questions?

¡Muchas Gracias!

Product Archive

formerly known as a Metapackage

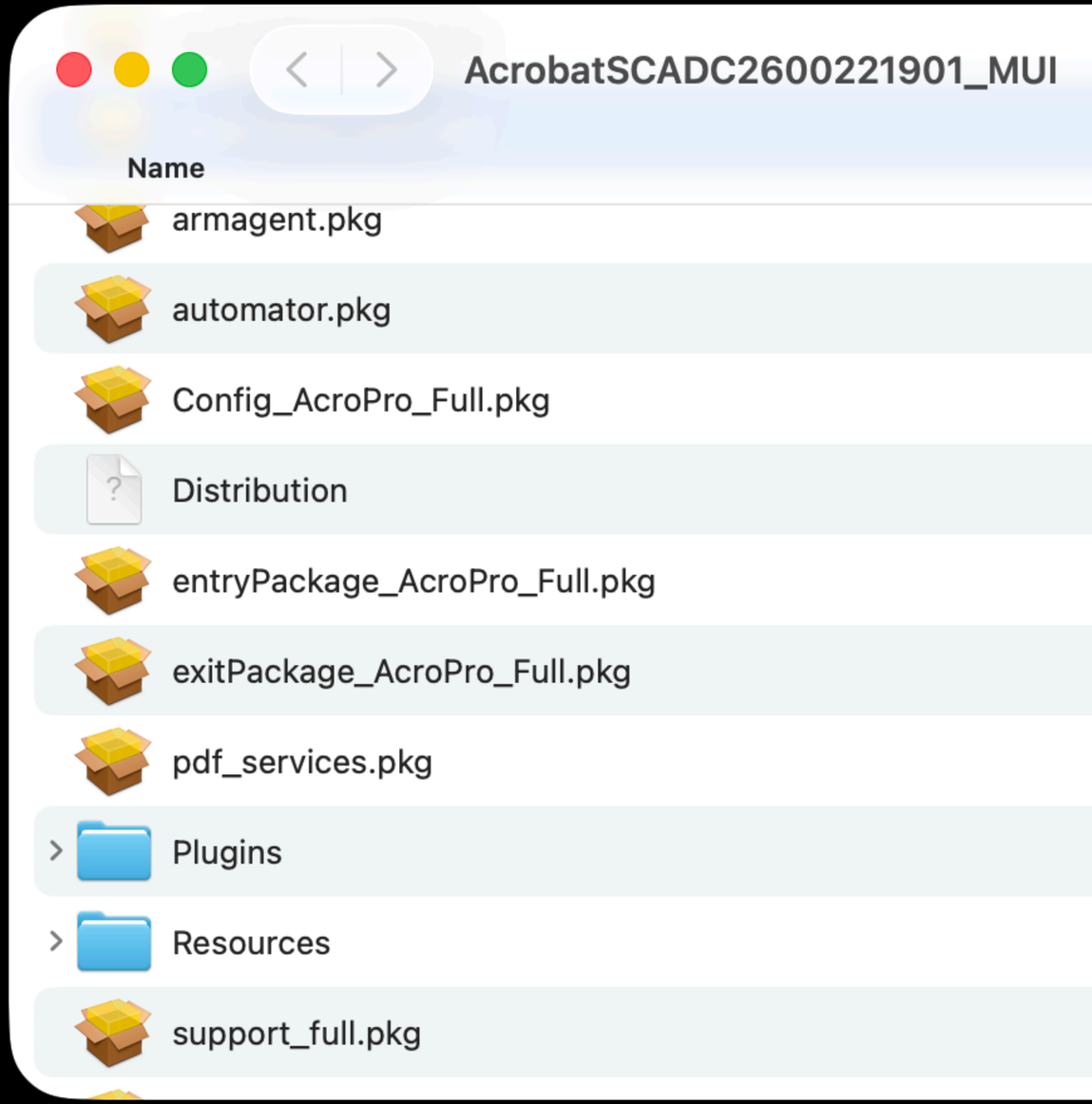
Product Archive

Why a Product Archive?

- App Store
- MDM Deployment
- Complicated Payload Delivery
- Custom Installation
- User Experience

Product Archive

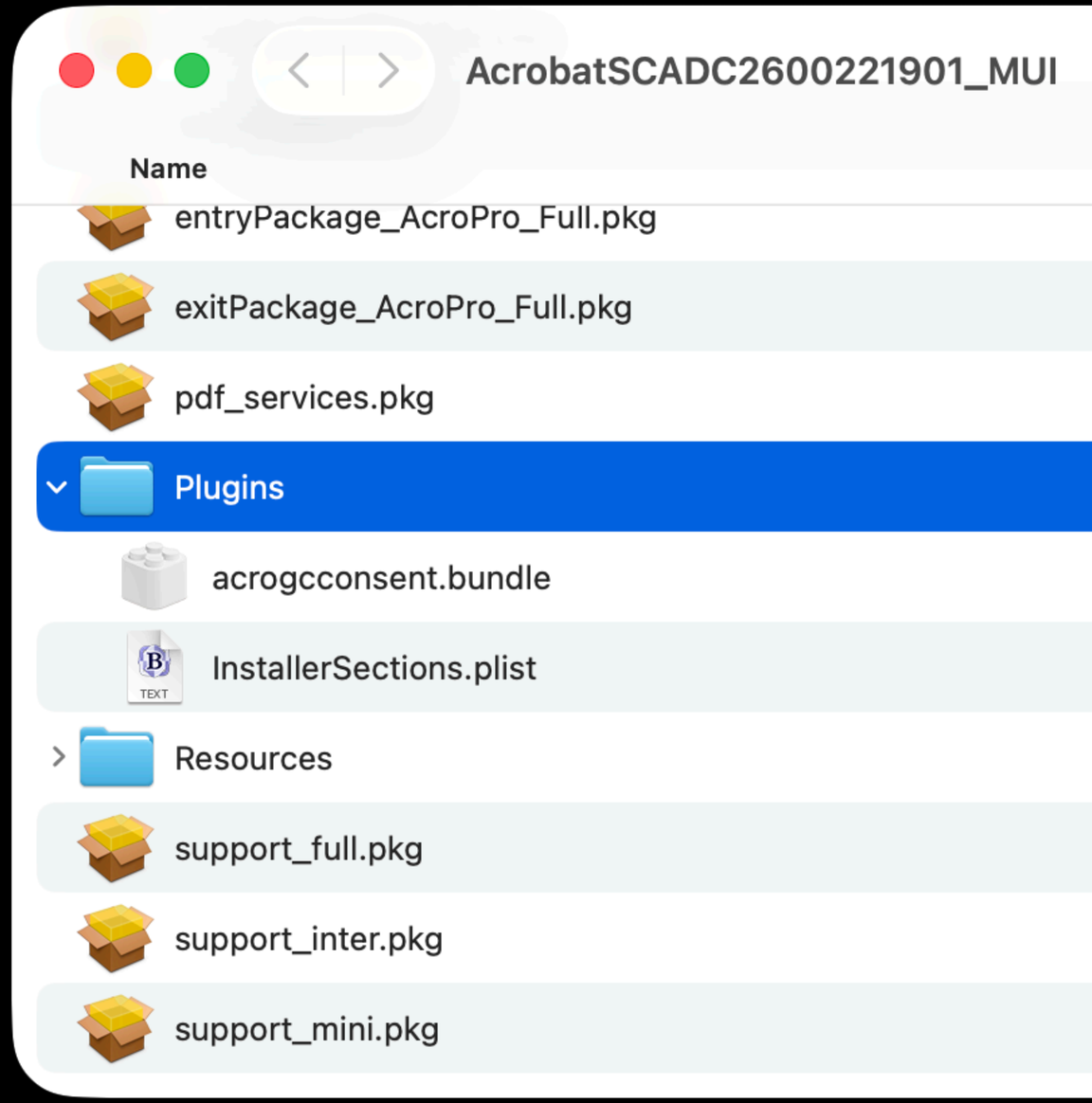
- Distribution
- Component Packages
- Plugins
- Resources



Product Archive

Plugins

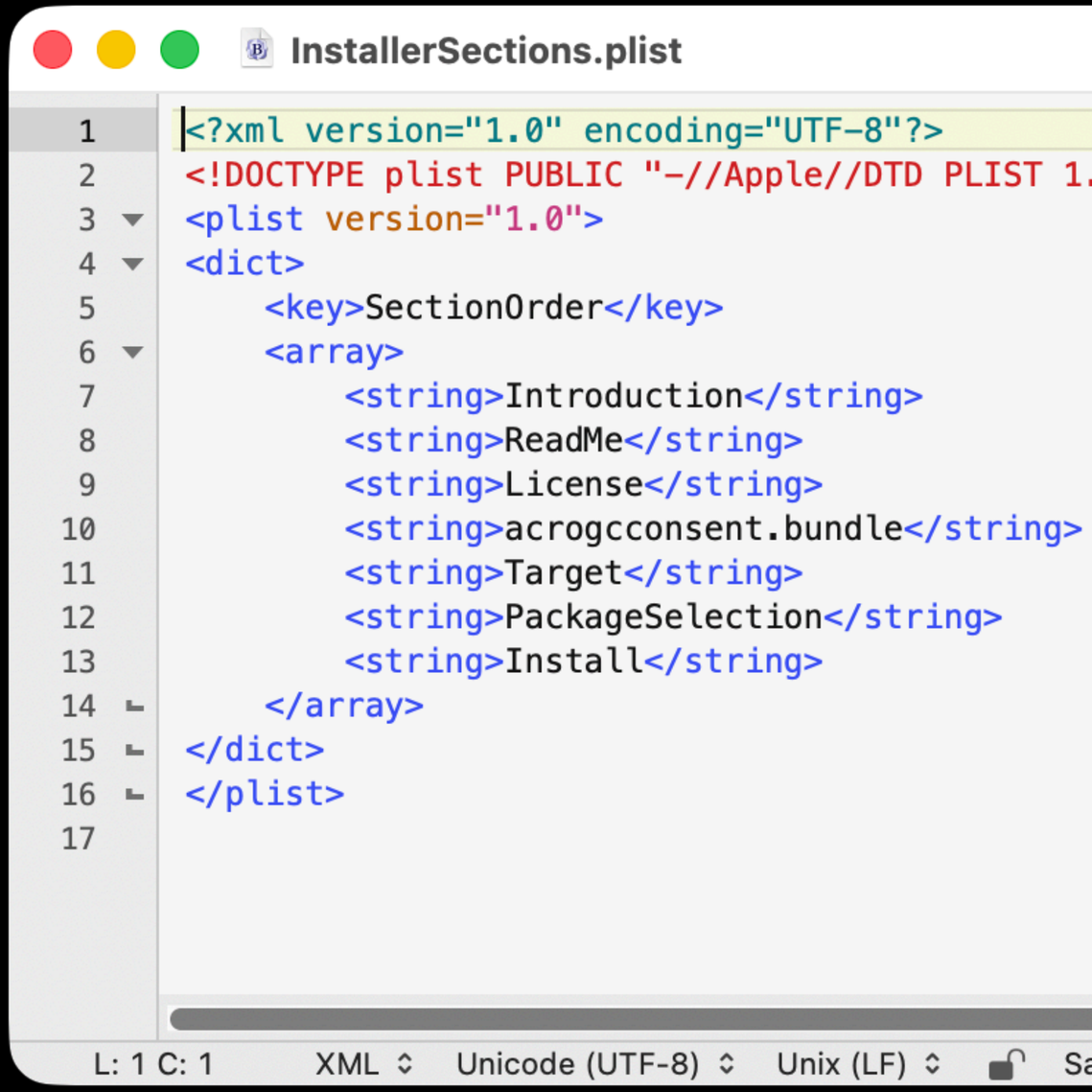
- Plugin bundle
- InstallerSections.plist



Product Archive

Plugins

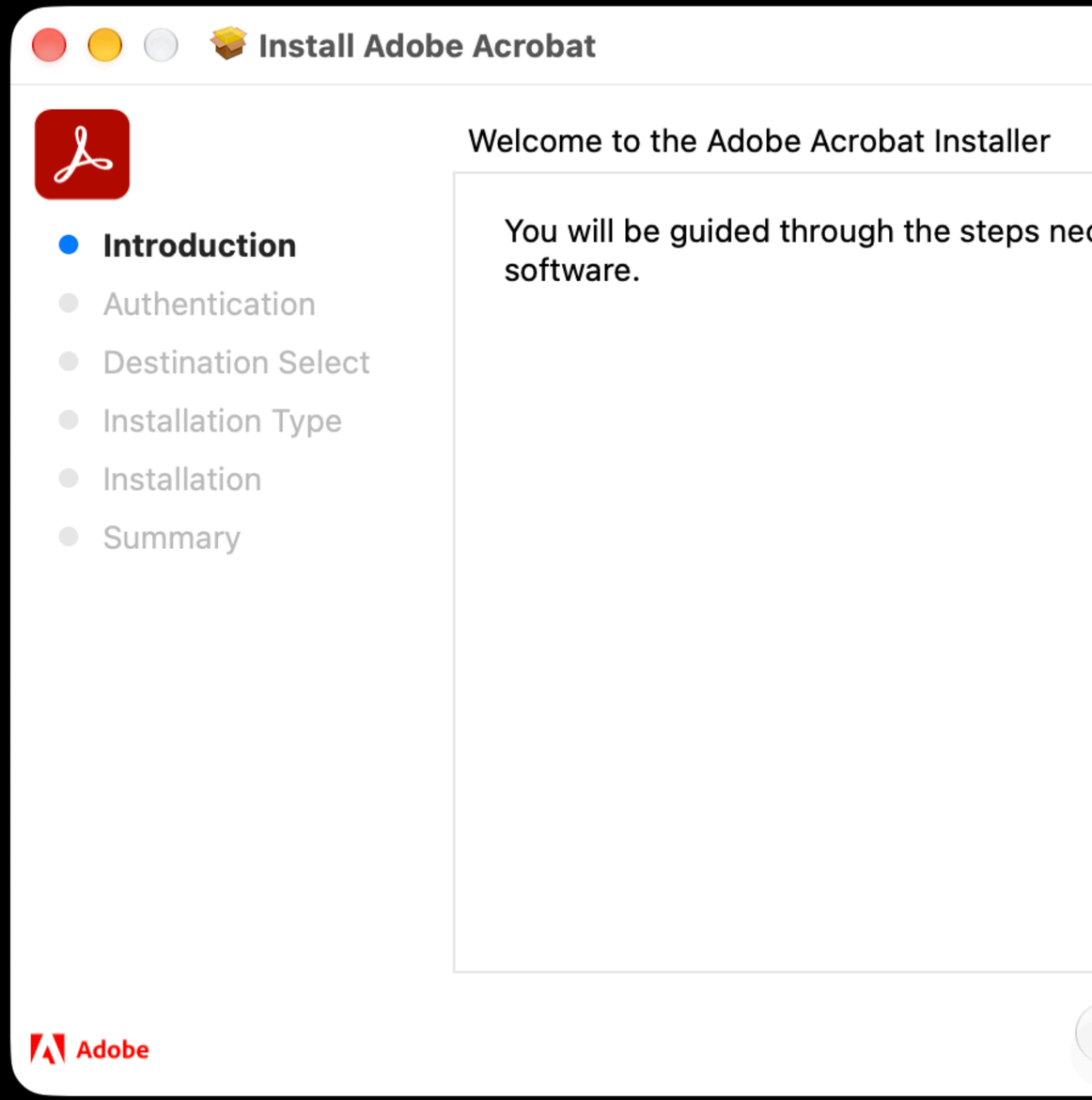
- Plugin bundle
- **InstallerSections.plist**



Product Archive

Plugins

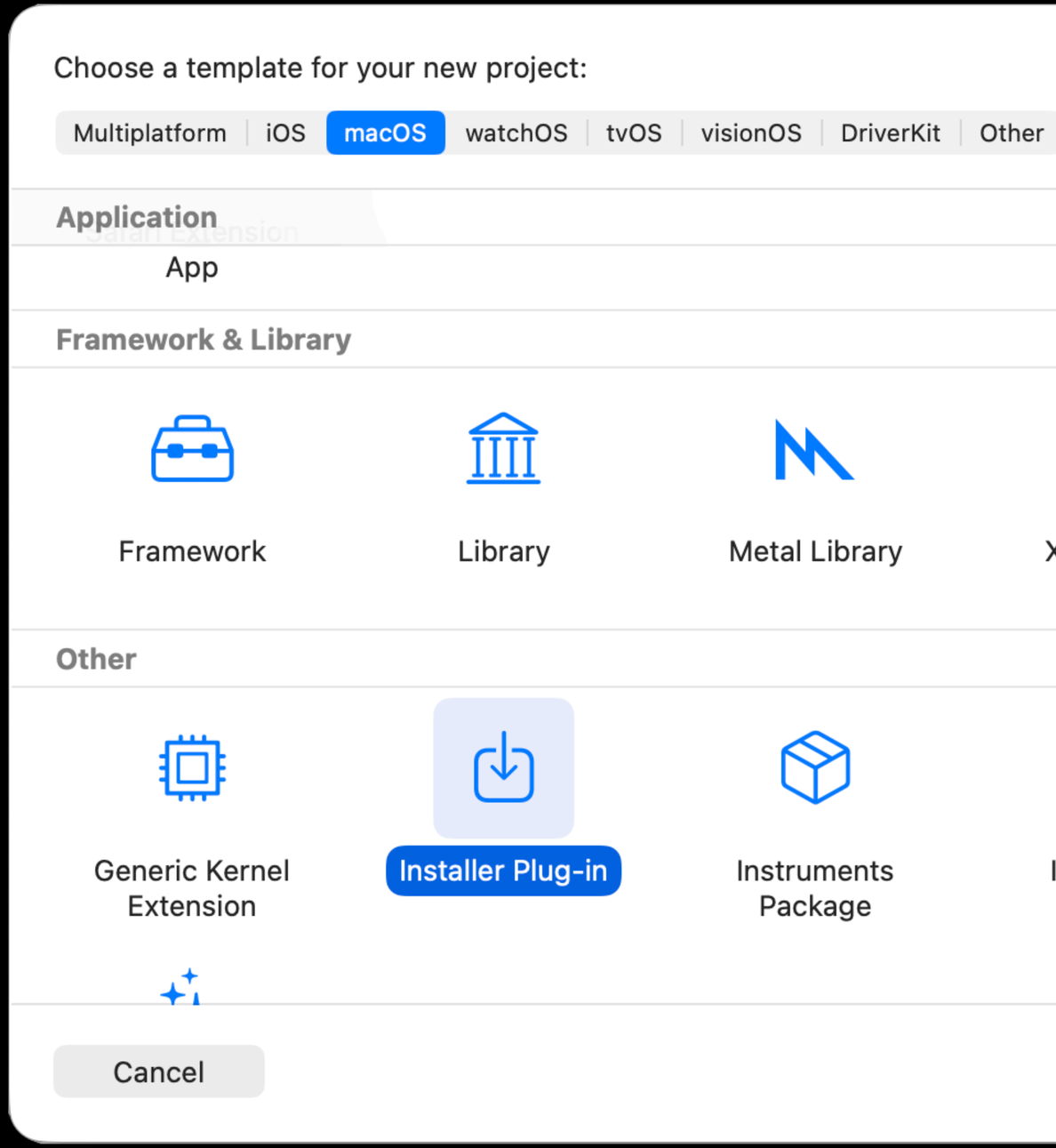
- Plugin bundle
- **InstallerSections.plist**



Product Archive

Plugins

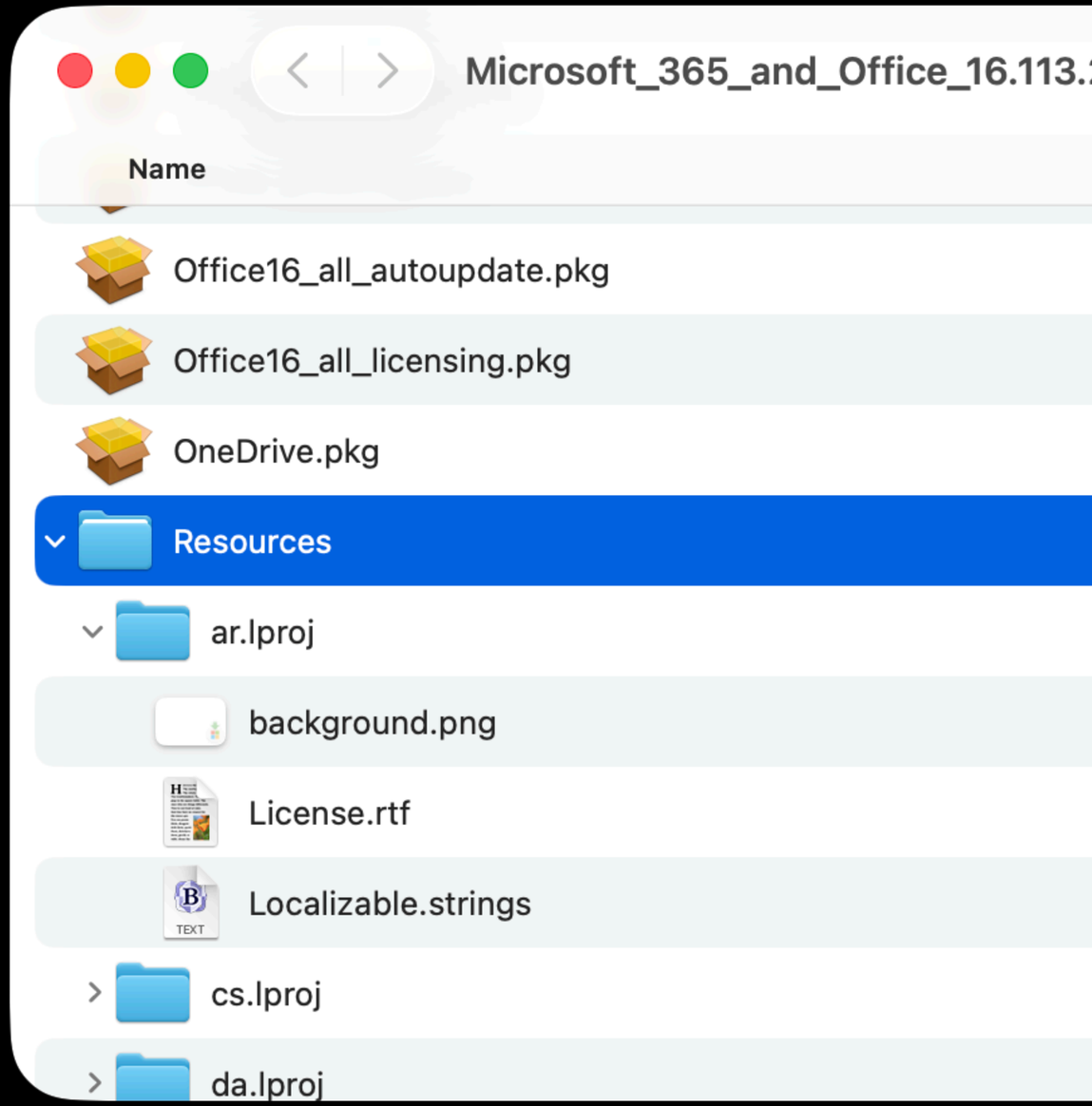
- Xcode Project
- Installer Plug-in



Product Archive

Resources

- Background
- Welcome
- ReadMe
- License
- Conclusion



Documentation

https://developer.apple.com/documentation/xcode/packaging-mac-software-for-distribution#Build-an-Installer-package

All Technologies

Xcode

Packaging Mac software for distr...

Code signing

Creating distribution-signed code ...

Using the latest code signature for...

Notarizing macOS software before...

Signing a daemon with a restricted...

Synchronizing code signing identit...

TN3125: Inside Code Signing: Prov...

Testing

Testing a release build

Testing a beta OS

Feedback

Viewing and responding to feedba...

Xcode Cloud

Filter /

Build an Installer package

If you choose to distribute your product in an Installer package, start by determining your Installer signing identity. Choose the right identity for your distribution channel:

- If you're distributing an app on the Mac App Store, use a Mac Installer Distribution signing identity. This is named `3rd Party Mac Developer Installer: <TeamID>`, where `<TeamID>` identifies your team.
- If you're distributing a product independently, use a Developer ID Installer-signing identity. This is named `Developer ID Installer: <TeamID>`, where `<TeamID>` identifies your team.

For information on how to set up these Installer-signing identities, see Developer Account Help.

Run the following command to confirm that your Installer-signing identity is present and correct:

```
% security find-identity -v
  1) 6210ECCC616B6A72F238DE6FDDFDA1A06DEFF9FB "3rd Party Mac Developer Installer
  2) C32E0E68CE92936D5532E21BAAD8CFF4A6D9BAA1 "Developer ID Installer: …"
     2 valid identities found
```

The `-v` argument filters for valid identities only. If the Installer-signing identity you need isn't listed, see Developer Account Help.

Documentation

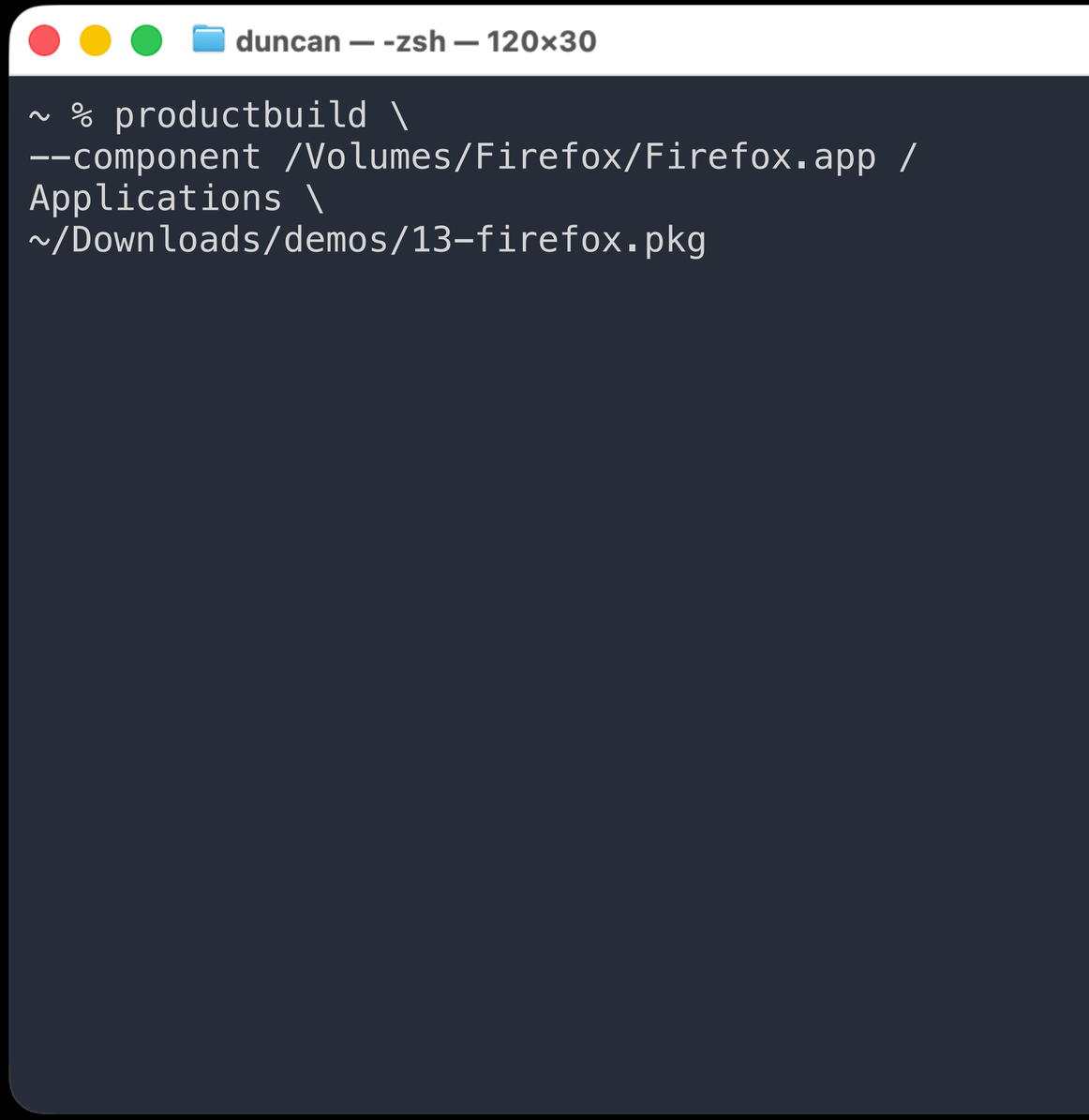
"If you have a more complex product, you'll need a more complex Installer package. For more details on how to work with Installer packages, see the productbuild, productsign, pkgbuild, and pkgutil man (manual) pages."

Reference

~ % man productbuild

productbuild

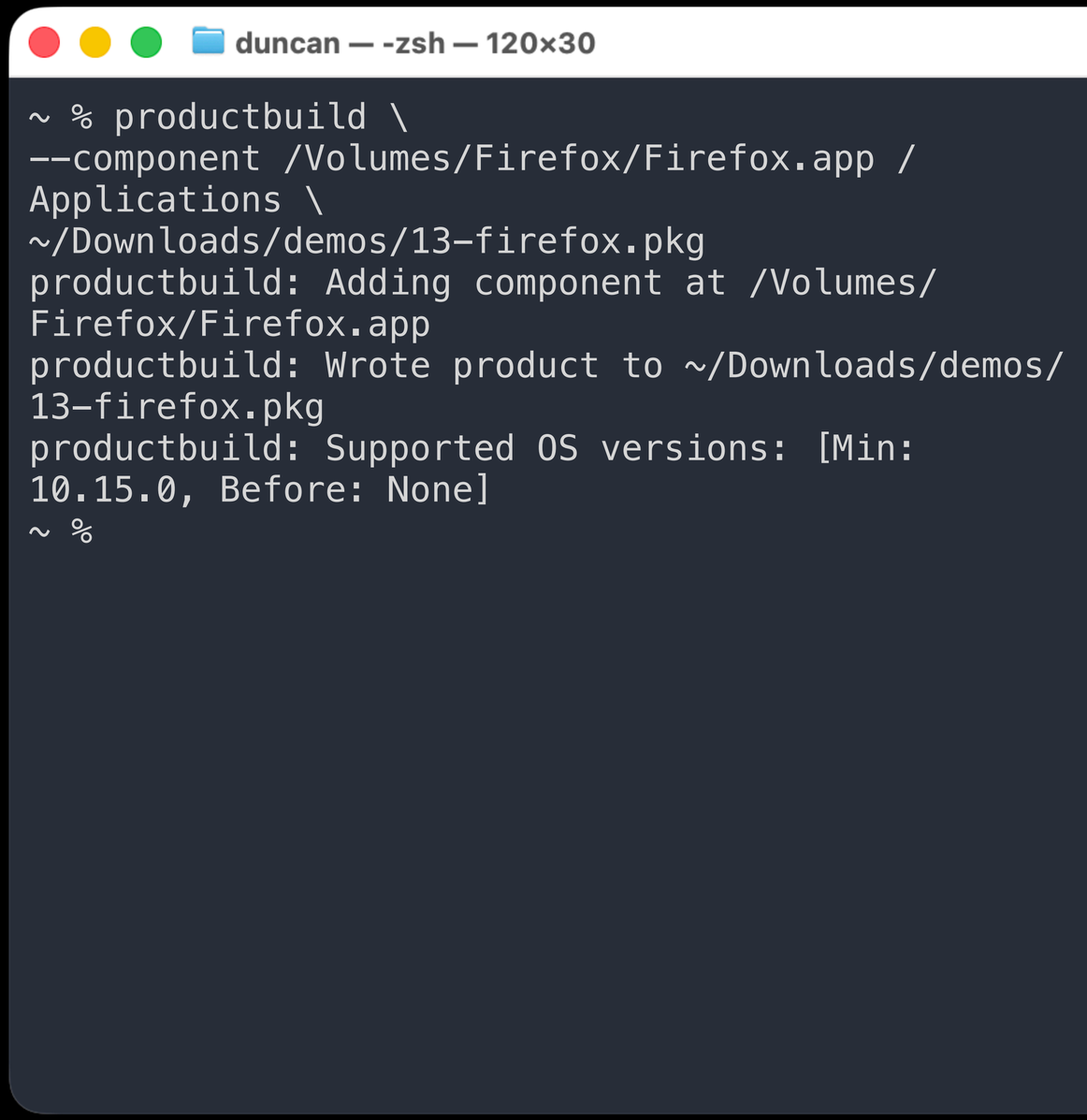
--component



productbuild

--component

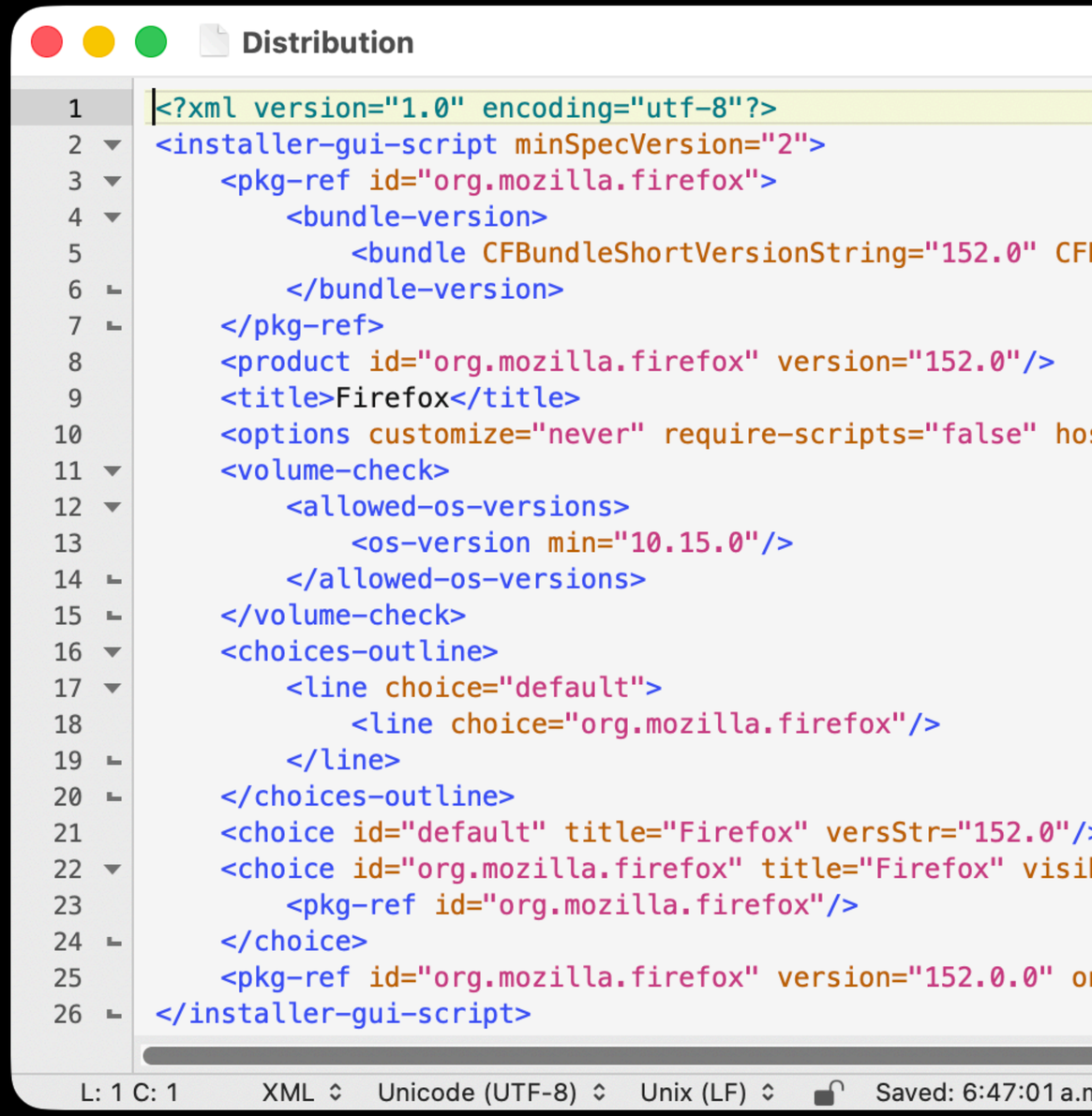
- Creates distribution
- Creates resources
- Creates component package
- Package is relocatable
- Performs bundle checks
- Has strict identifier
- Best compression



productbuild

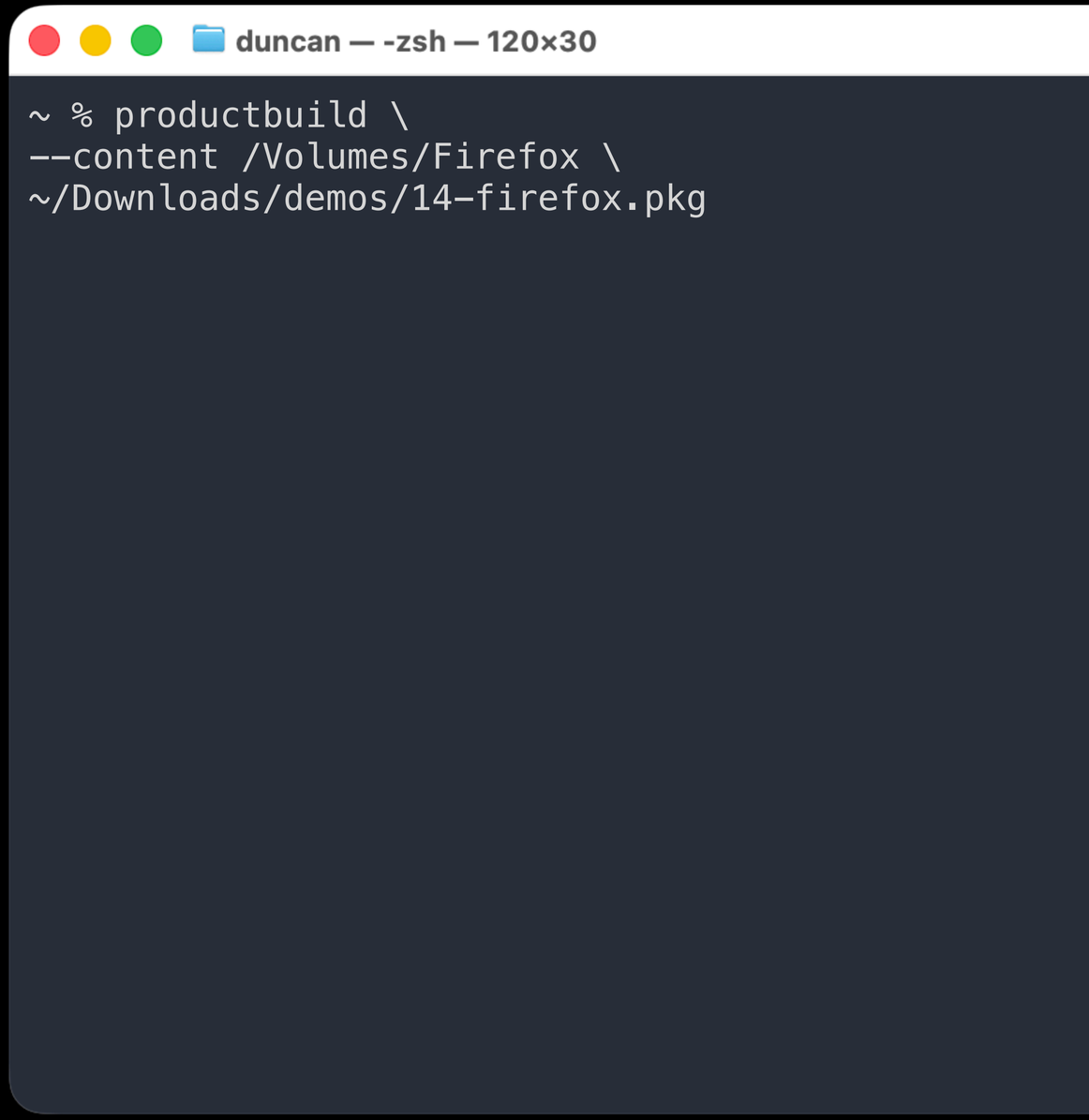
--component

- Creates distribution
- Creates resources
- Creates component package
- Package is relocatable
- Performs bundle checks
- Has strict identifier
- Best compression



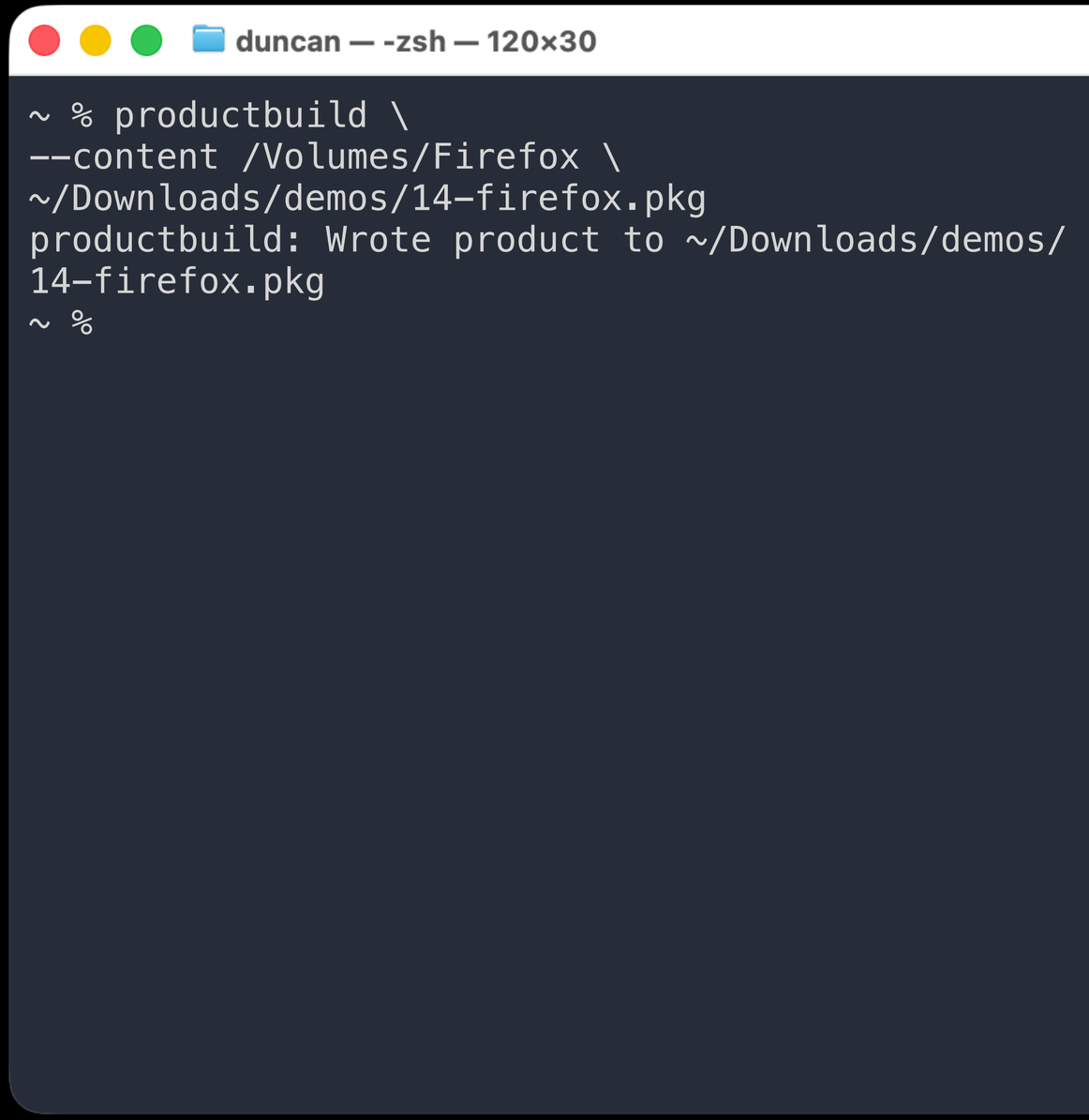
productbuild

--content



productbuild
--content

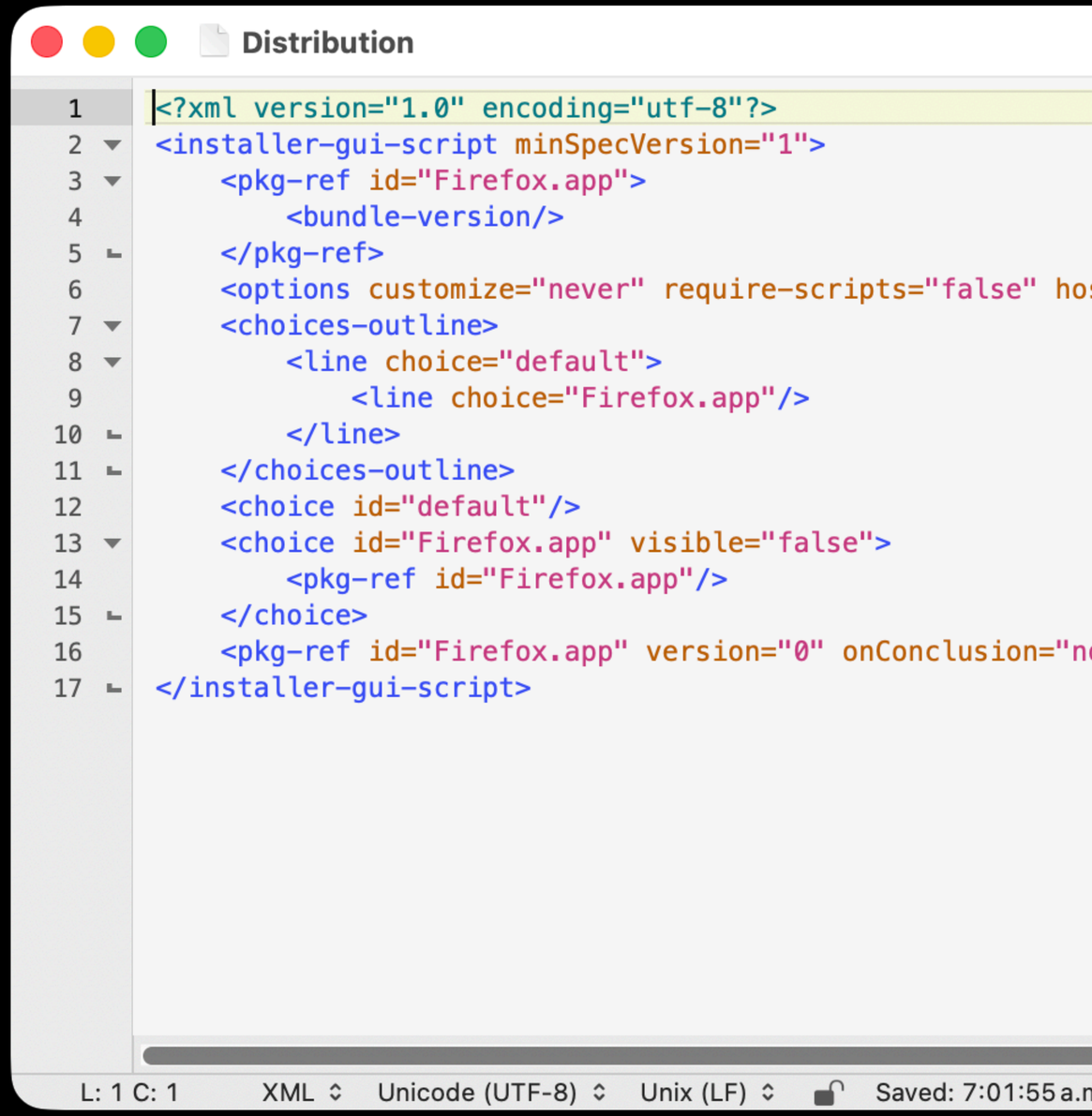
- Creates minimal distribution
- Creates component package
- No resources
- Not relocatable
- No bundle checks
- No strict identifier
- No filters

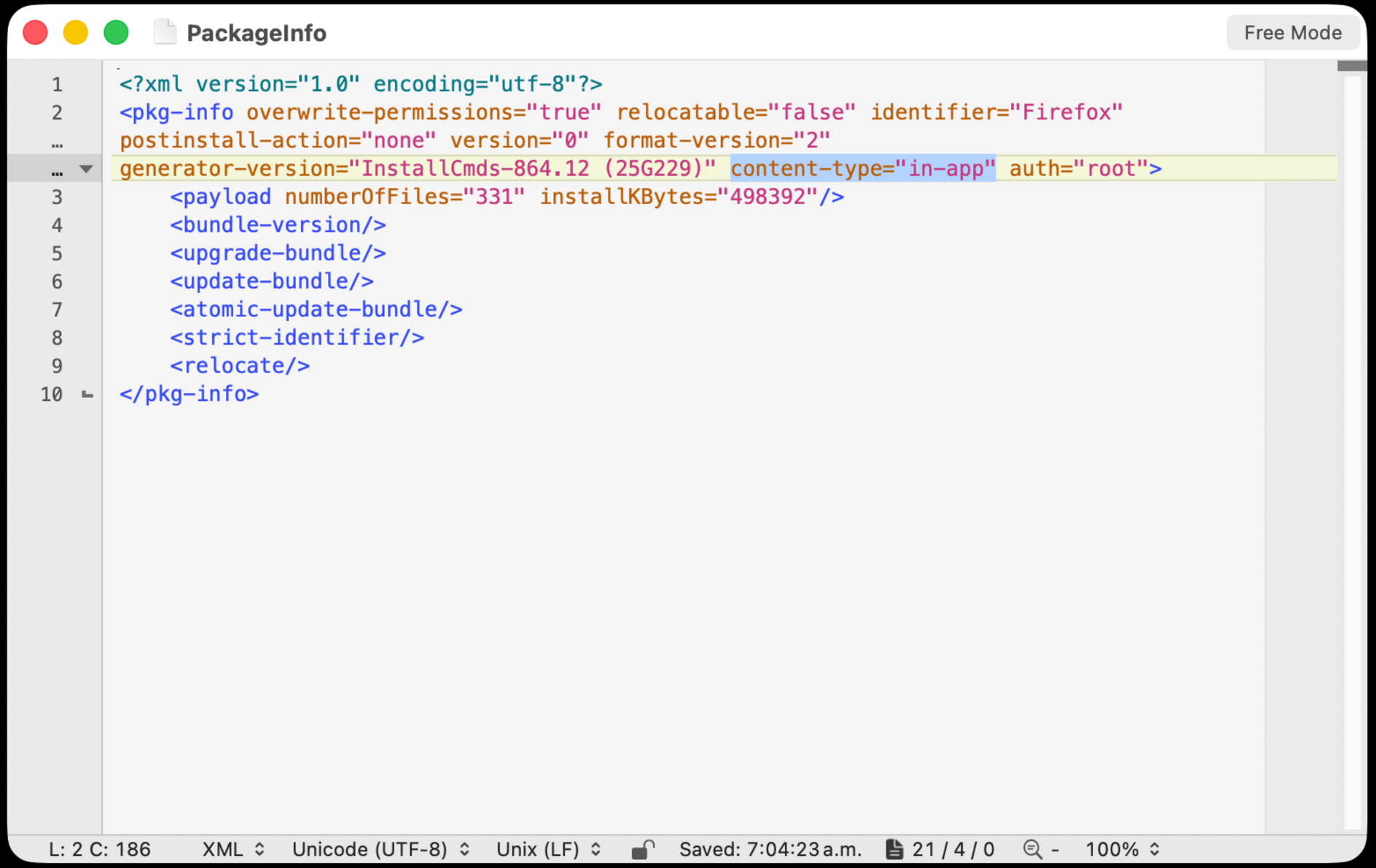


productbuild

--content

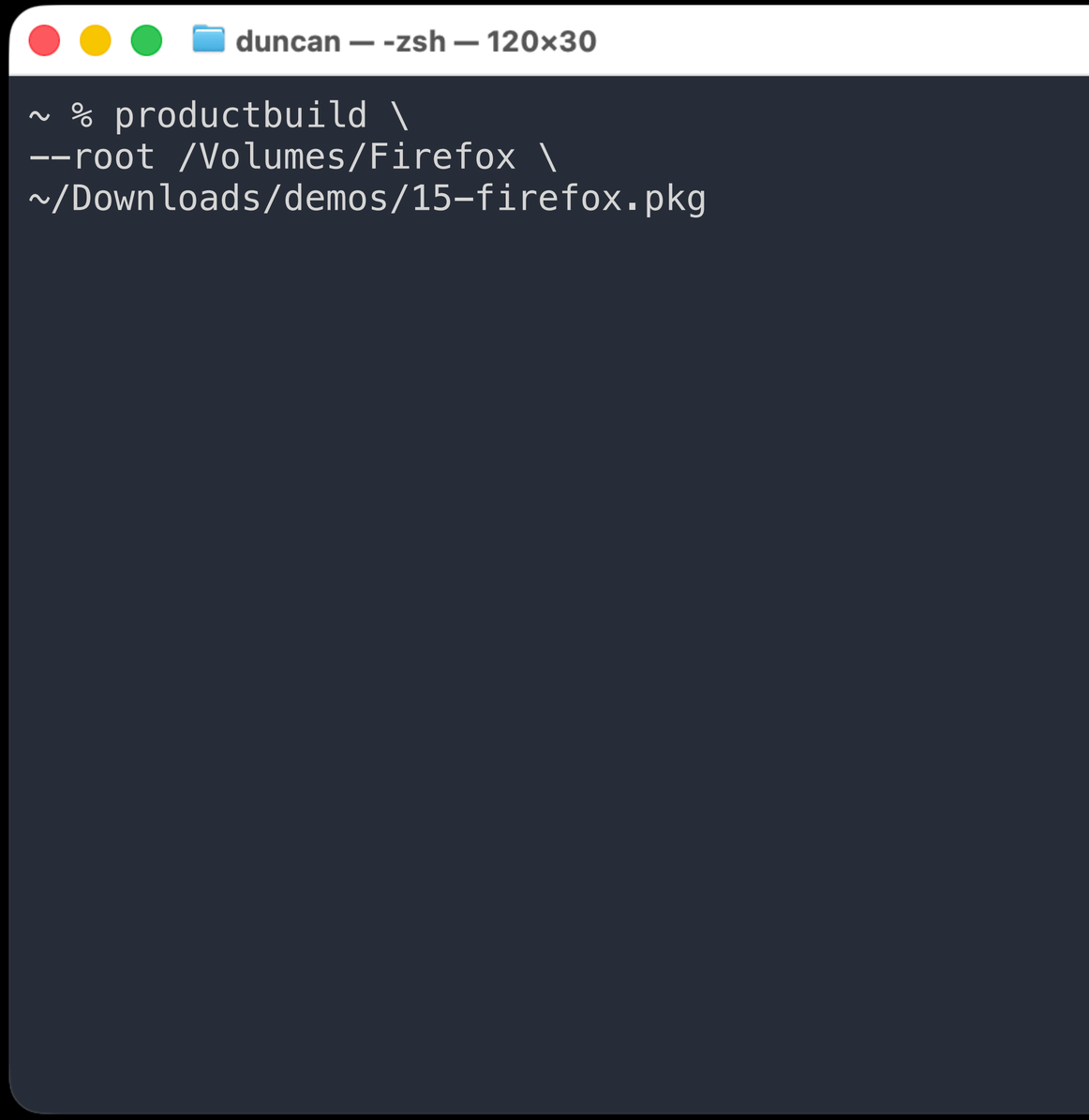
- Creates minimal distribution
- Creates component package
- No resources
- Not relocatable
- No bundle checks
- No strict identifier
- No filters




PackageInfo
Free Mode
1 <?xml version="1.0" encoding="utf-8"?>
2 <pkg-info overwrite-permissions="true" relocatable="false" identifier="Firefox"
… postinstall-action="none" version="0" format-version="2"
… generator-version="InstallCmds-864.12 (25G229)" content-type="in-app" auth="root">
3 <payload numberOfFiles="331" installKBytes="498392"/>
4 <bundle-version/>
5 <upgrade-bundle/>
6 <update-bundle/>
7 <atomic-update-bundle/>
8 <strict-identifier/>
9 <relocate/>
10 </pkg-info>
L: 2 C: 186
XML
Unicode (UTF-8)
Unix (LF)
Saved: 7:04:23 a.m.
21 / 4 / 0
100%

productbuild

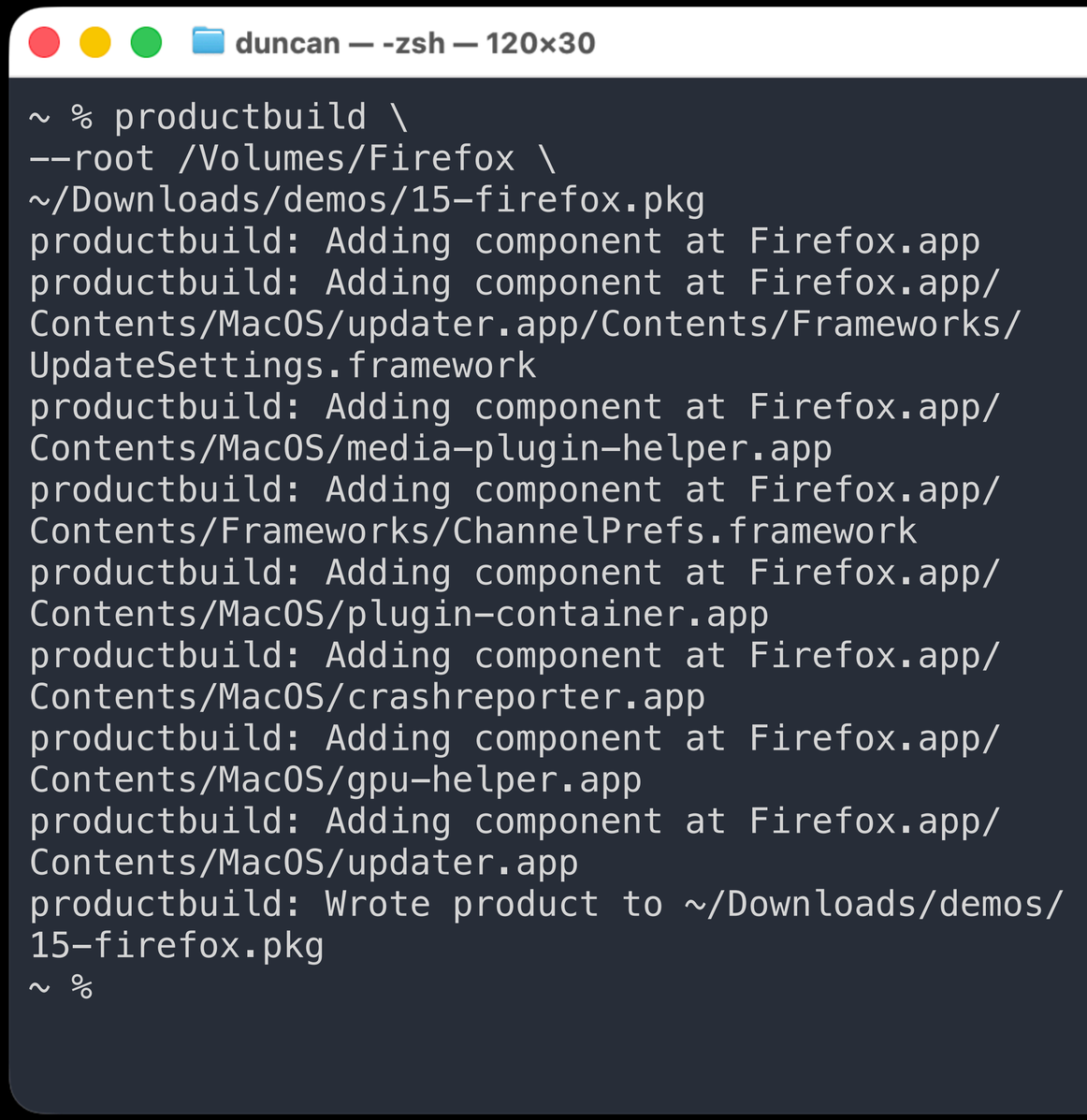
--root



productbuild

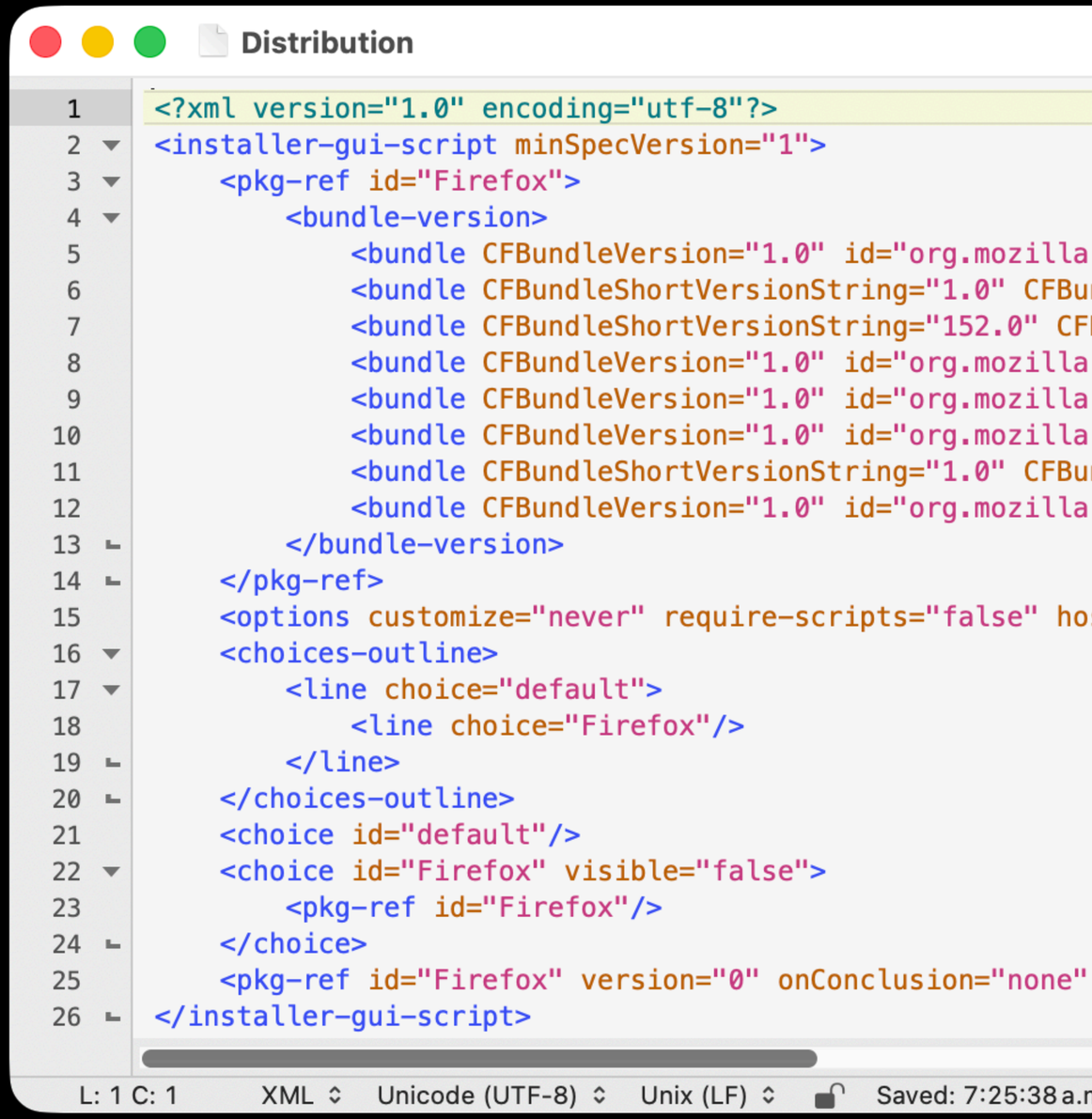
--root

- Creates distribution
- No resources
- Creates component package
- Package is relocatable
- Performs bundle checks
- Has strict identifier(s)
- No filters



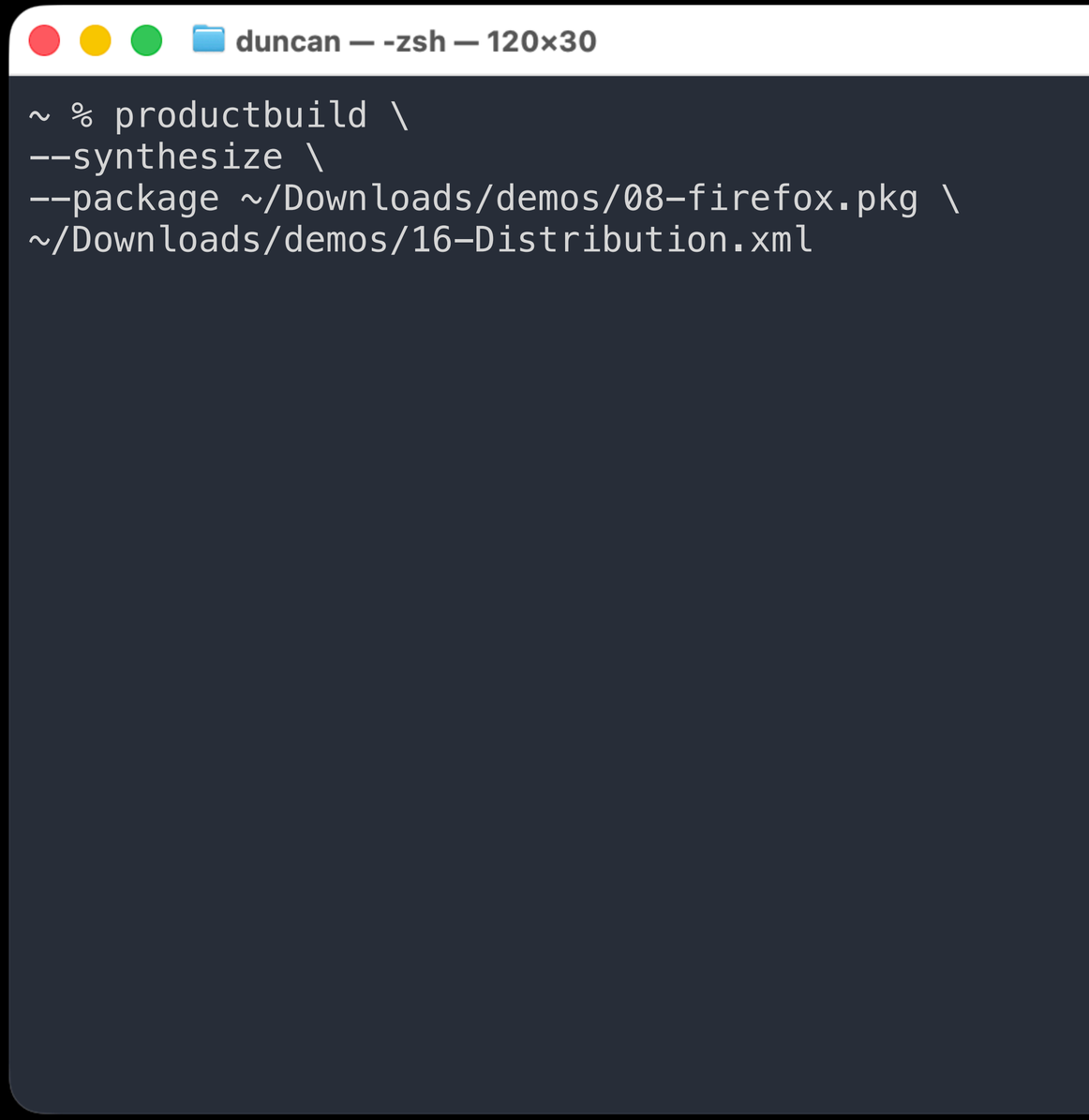
productbuild
--root

- Creates distribution
- No resources
- Creates component package
- Package is relocatable
- Performs bundle checks
- Has strict identifier(s)
- No filters



productbuild
--synthesize

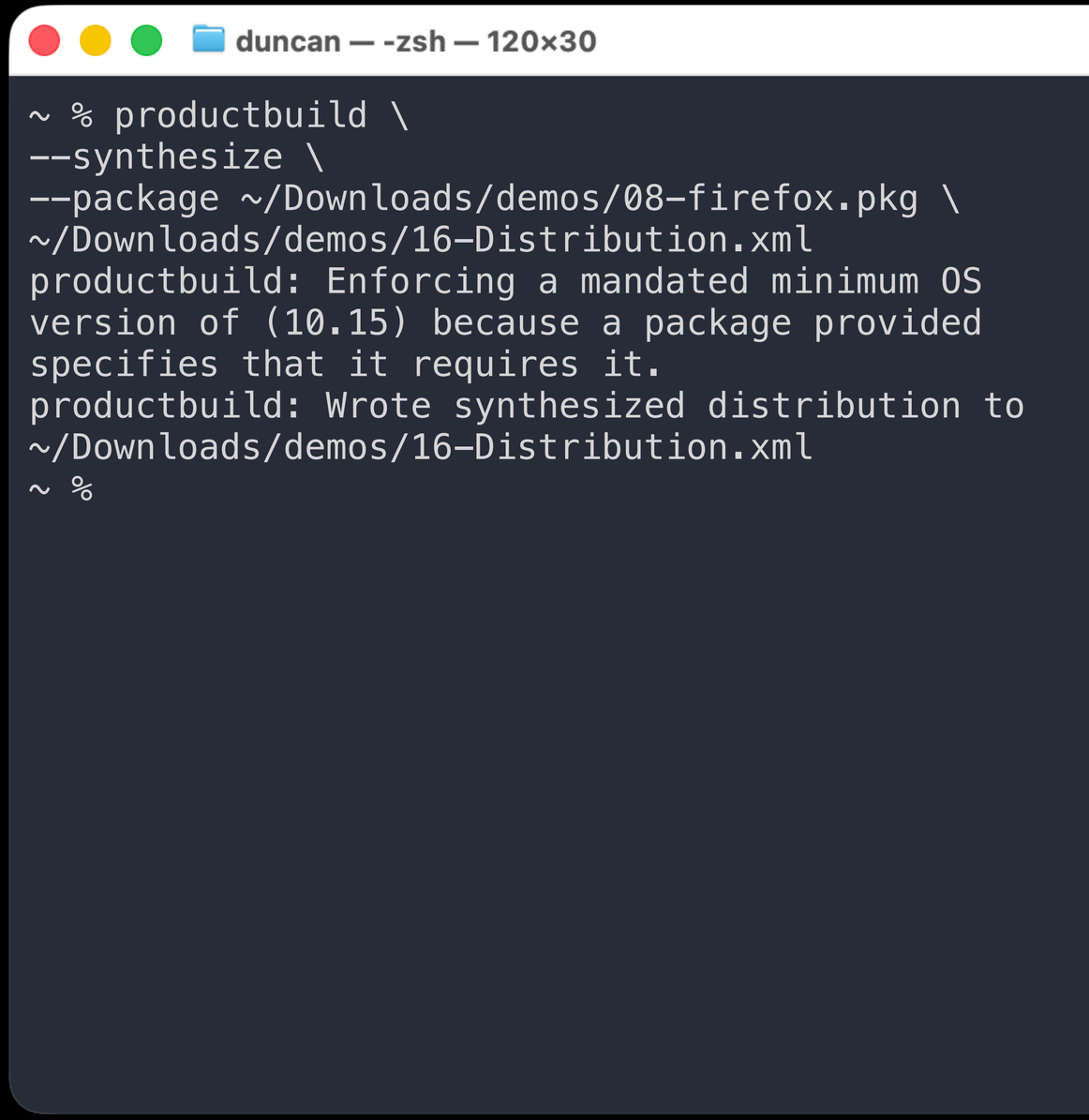
- Requires component package



productbuild

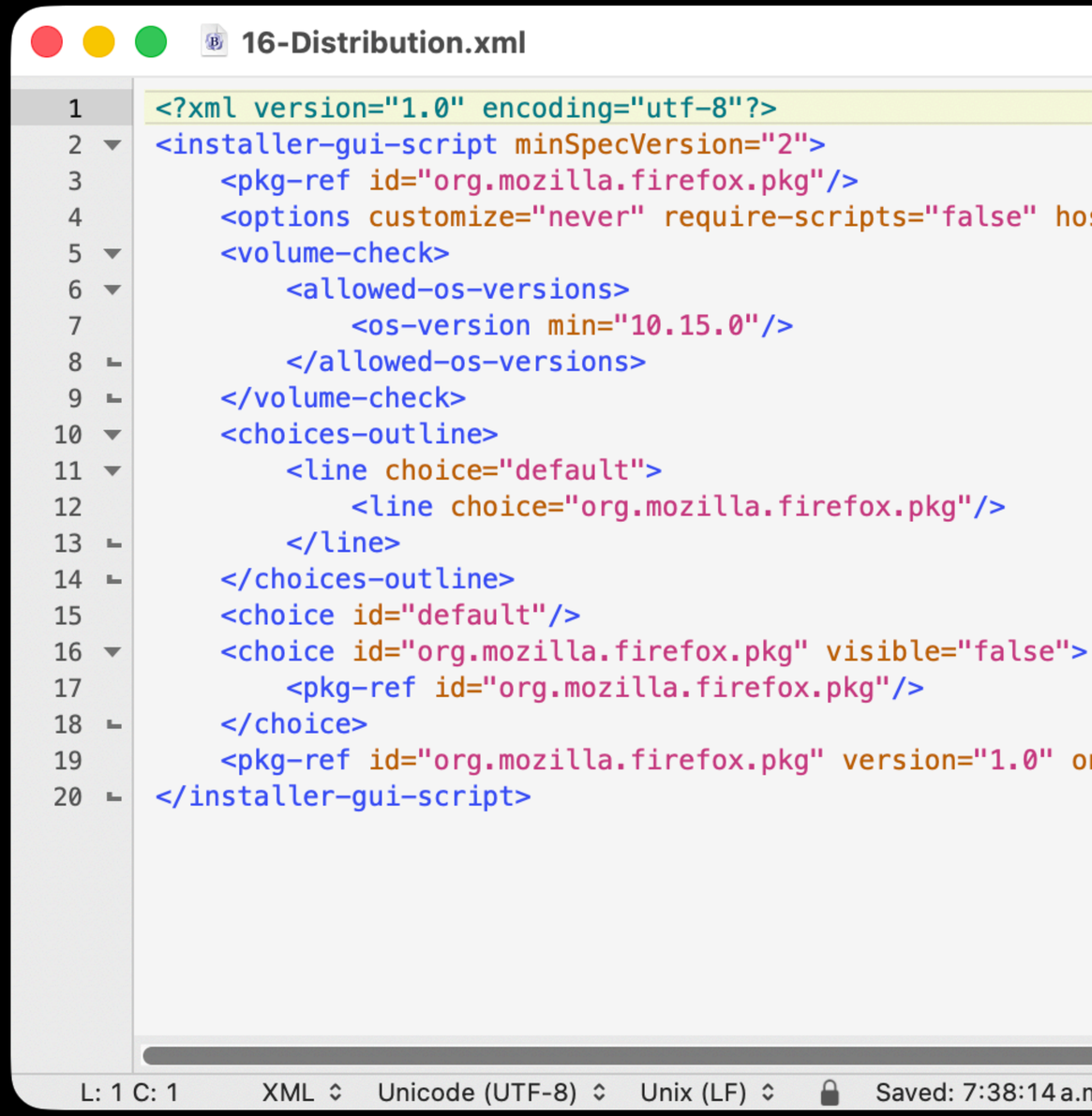
--synthesize

- Requires component package
- Creates distribution
- Properties are inferred from the package



productbuild
--synthesize

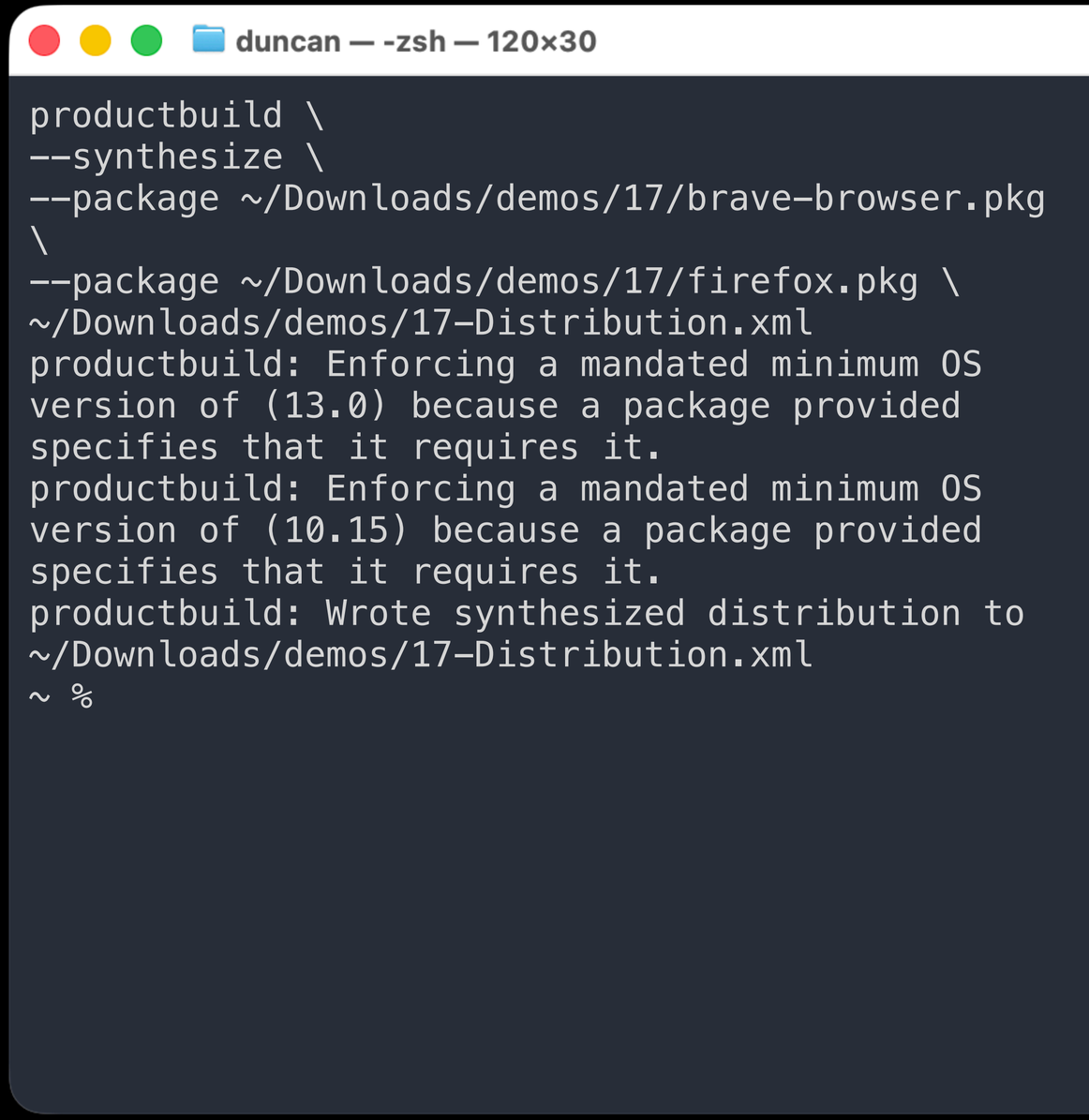
- Requires component package
- Creates distribution
- Properties are inferred from the package



productbuild

--synthesize

- Requires component package
- Can have multiple --package options
- Creates distribution
- Properties are inferred from the packages



productbuild

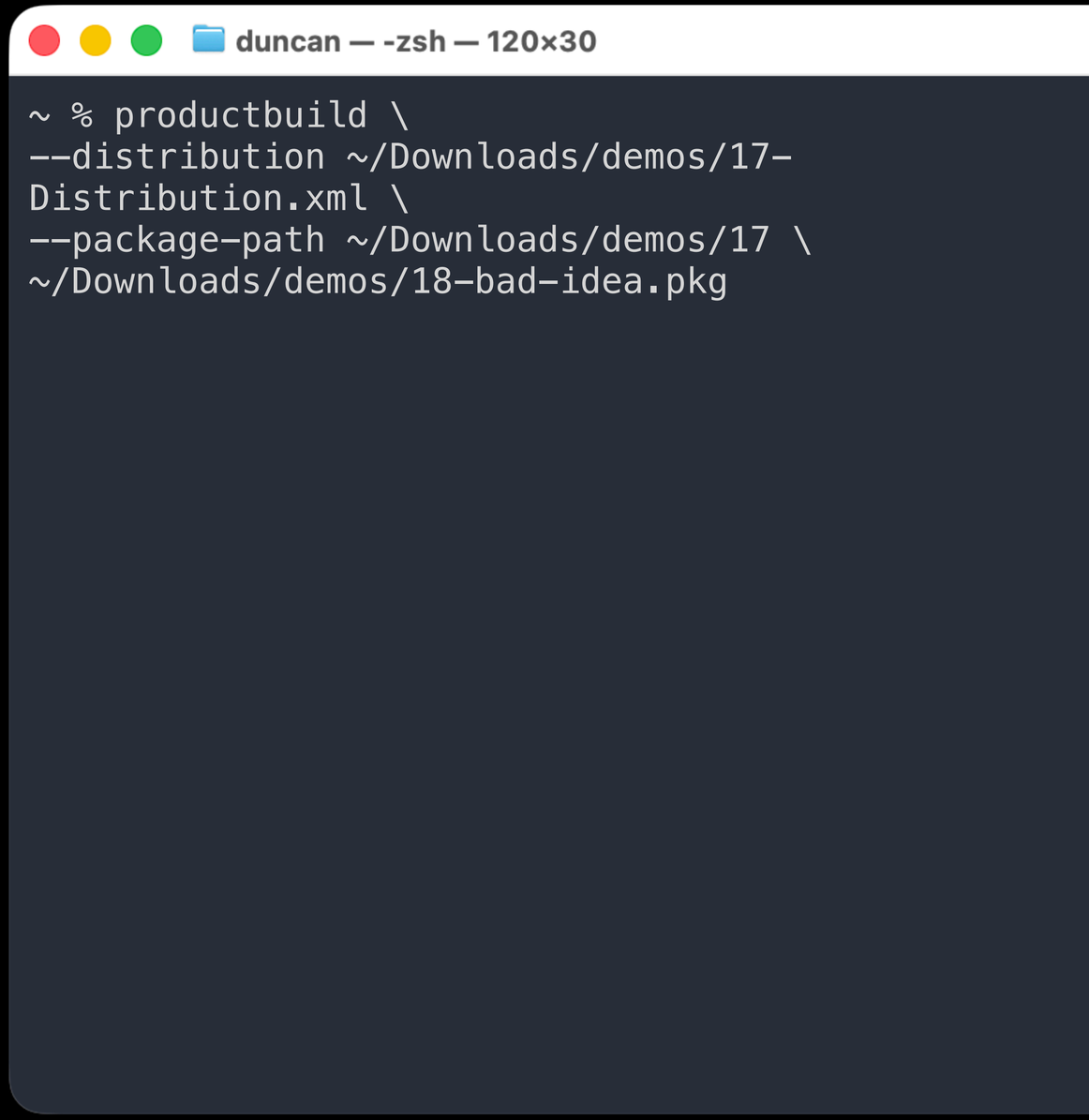
--synthesize

- Requires component package
- Can have multiple --package options
- Creates distribution
- Properties are inferred from the packages



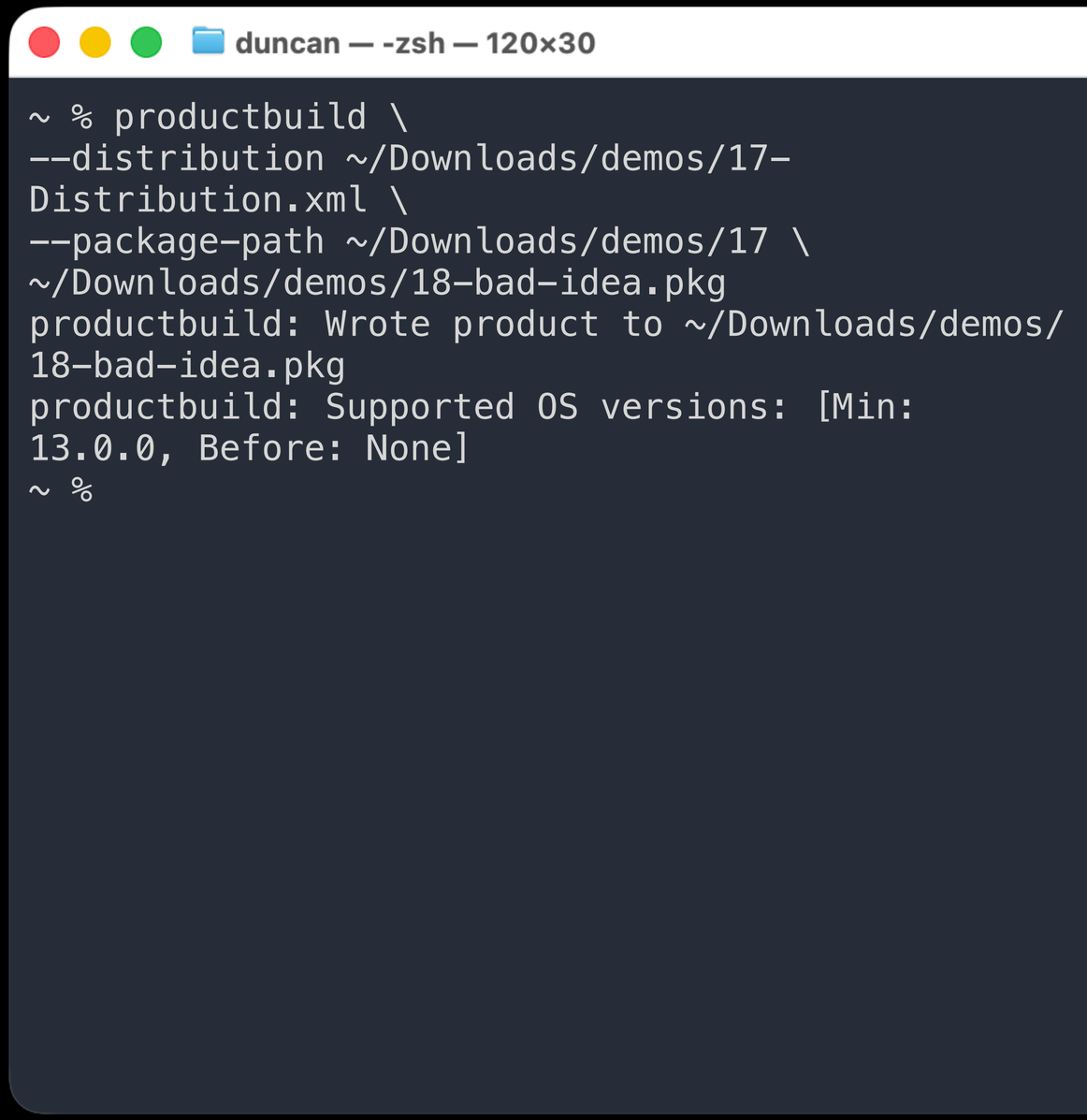
productbuild
--distribution

- Requires distribution
- Requires component package(s)



productbuild
--distribution

- Requires distribution
- Requires component package(s)
- Properties are updated from packages



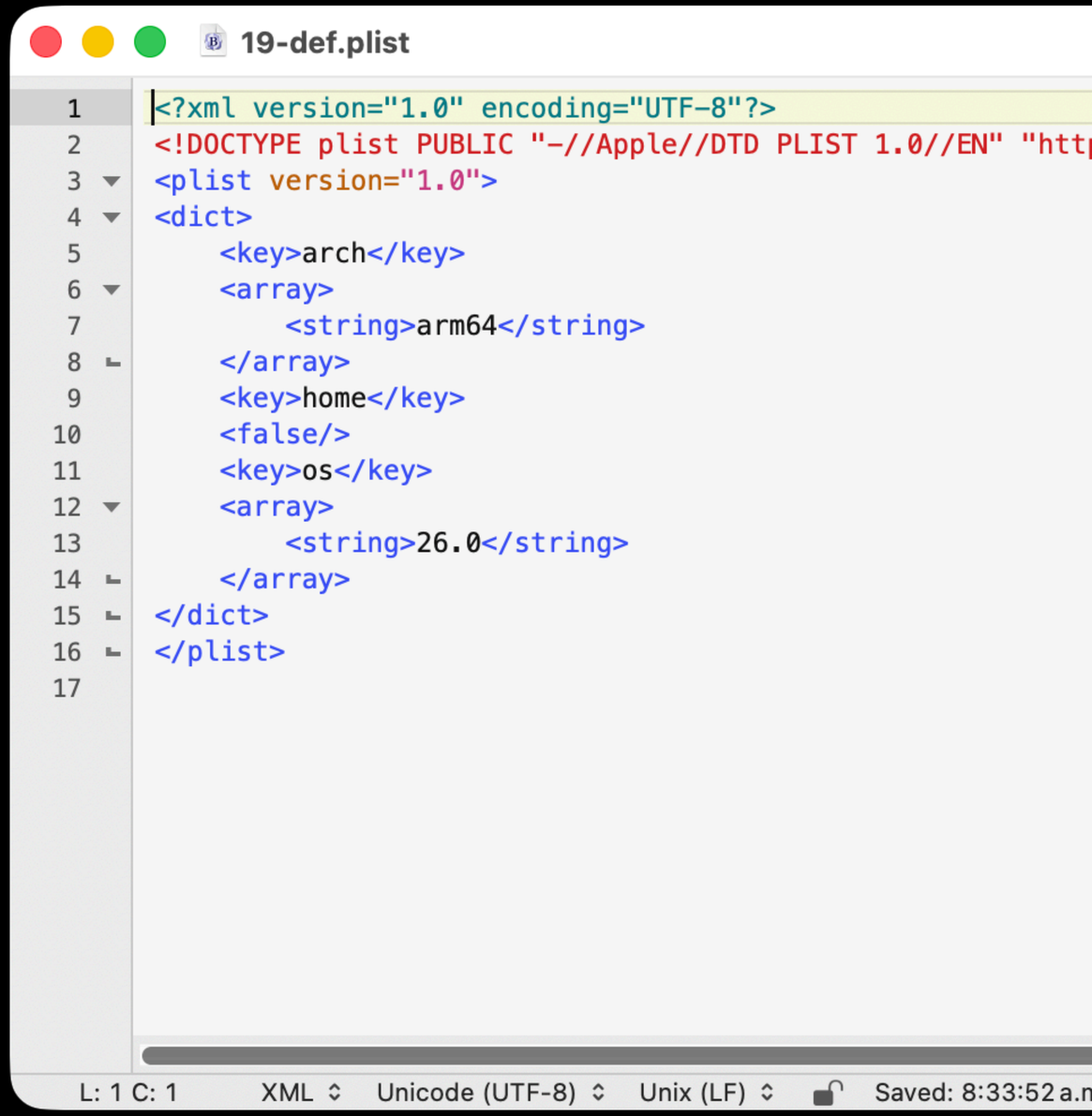
productbuild
--distribution

- Requires distribution
- Requires component package(s)
- Properties are updated from packages



productbuild
--product

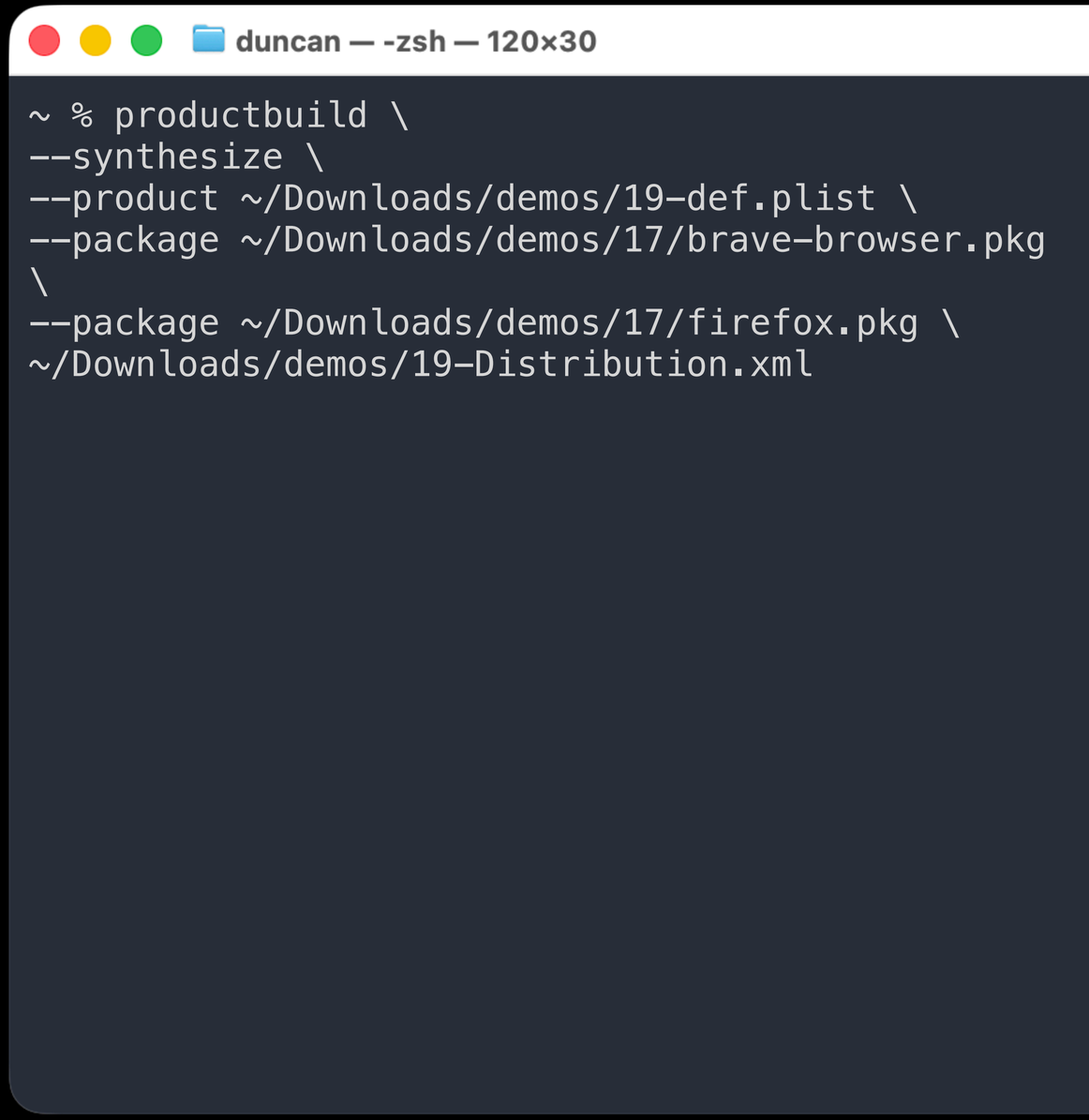
- Requires distribution
- Requires component package(s)
- Requirements plist



productbuild

--product

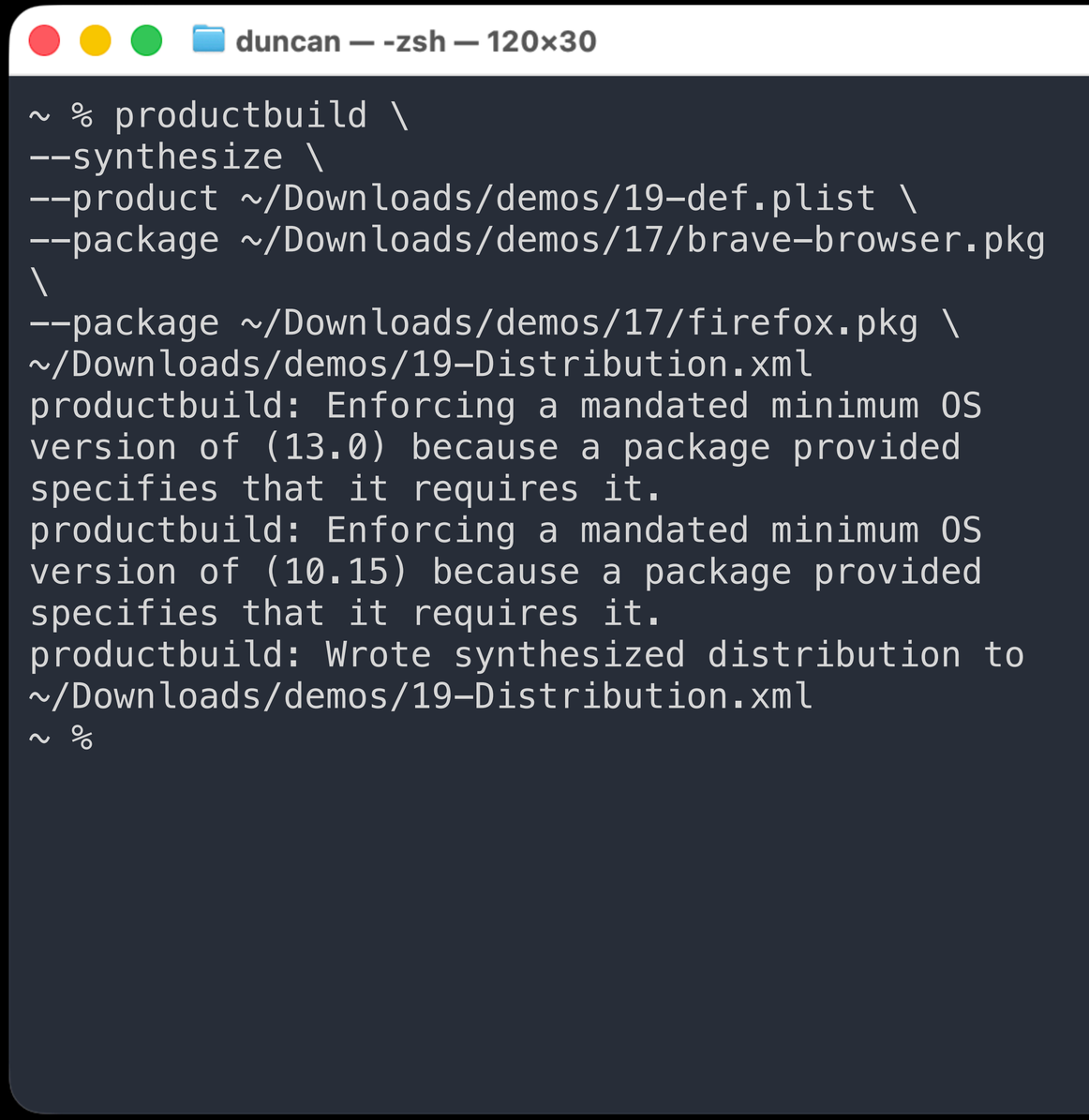
- Requires distribution
- Requires component package(s)
- Requirements plist



productbuild

--product

- Requires distribution
- Requires component package(s)
- Requirements plist
- Properties are updated from packages
- Requirements plist overwrites package properties



productbuild
--product

- Requires distribution
- Requires component package(s)
- Requirements plist
- Properties are updated from packages
- Requirements plist overwrites package properties



productbuild

options

--resources rsrc-dir

productbuild

options

--resources rsrc-dir

--ui interface-type

productbuild

options

--resources rsrc-dir

--ui interface-type

--identifier product-identifier

productbuild

options

--resources rsrc-dir

--ui interface-type

--identifier product-identifier

--version product-version

productbuild

options

--resources rsrc-dir

--ui interface-type

--identifier product-identifier

--version product-version

--component-compression compression-mode

productbuild

options

--resources rsrc-dir

--ui interface-type

--identifier product-identifier

--version product-version

--component-compression compression-mode

--scripts scripts-path

productbuild

options

--resources rsrc-dir

--ui interface-type

--identifier product-identifier

--version product-version

--component-compression compression-mode

--scripts scripts-path

--plugins plugins-path

productbuild

options

--resources rsrc-dir

--ui interface-type

--identifier product-identifier

--version product-version

--component-compression compression-mode

--scripts scripts-path

--plugins plugins-path

--large-payload

Distribution

Documentation

https://developer.apple.com/documentation/installer_js

All Technologies

Installer JS

Classes

- Applications
- Choice
- Files
- IORegistry
- ProcessInformation
- Result
- System
- Target

Filter /

Installer JS

Manage and customize the installation and distribution experience.

Overview

A distribution definition file defines the install experience for a product. The Installer application opens and interprets distribution definition files to generate the user interface users manipulate to execute and customize a product install.

Distribution definition files contain XML and JavaScript code. The XML code defines the structure of a distribution, while the JavaScript code defines and manages install-time properties, such as installation options. Distribution Definition XML Schema Reference describes the XML schema used to define the structure of a distribution.

This document describes the object model that the JavaScript code in a distribution definition file can use to manage user input and system properties.

Table of Contents

Introduction
Distribution XML Reference
allowed-os-versions
app
auxinfo
background
bundle
bundle-version
choice
choices-outline
conclusion
domains
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license
line
localization
locator
must-close
options
os-version
pkg-ref
product
ram
readme
relocate
required-bundles
required-cl-device
required-gl-renderer
required-graphics
script

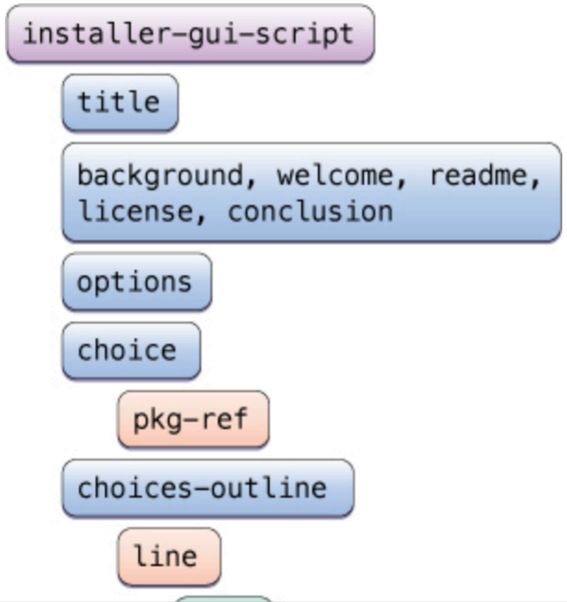
About Distribution Definition Files

A distribution definition file defines the installation experience for the installer package that contains it. This document describes the XML schema used for distribution definition files.

An installer package can contain only one distribution definition file, which must be named `distribution.dist`.

Important: For applications distributed on the App Store, use Xcode to make your installer package. If you need to specify system requirements, use the Pre-install Requirements Property List in the Xcode build settings. For more details, see the `productbuild` man page.

Figure I-1 Structure of a typical distribution definition file



Distribution

installer-gui-script

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
<?xml version="1.0" ?>
    <installer-gui-script minSpecVersion="2">
    <domains enable_anywhere="false" enable_currentUserHome="false" enable_localSystem="true"/>
    <title>Adobe Acrobat</title>
    <!-- welcome file="Welcome.rtf" mime-type="text/rtf" / -->
    <!--    <readme file="ReadMe.html" mime-type="text/html"/>-->
    <background alignment="center" mime-type="image/png" scaling="tofit" file="AcrobatBackgroun
    <background-darkAqua alignment="center" file="AcrobatBackgroundDarkMode_copy.png" mime-type
    <options hostArchitectures="x86_64,arm64" customize="never"/>
    <choice id="EntryPackage" start_visible="false" title="EntryPackage">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI" onConclusion="none" ver
    </choice>
    <choice customLocation="/Applications/Adobe Acrobat DC" description="DESCRIPTION_APPLICATIO
        <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none" version="26.
        <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none" version="26.
        <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none" version="26.
    </choice>
    <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig" star
```

Distribution

title

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
<?xml version="1.0" ?>
    <installer-gui-script minSpecVersion="2">
    <domains enable_anywhere="false" enable_currentUserHome="false" enable_localSystem="true"/>
    <title>Adobe Acrobat</title>
    <!-- welcome file="Welcome.rtf" mime-type="text/rtf" / -->
    <!--    <readme file="ReadMe.html" mime-type="text/html"/>-->
    <background alignment="center" mime-type="image/png" scaling="tofit" file="AcrobatBackgroun
    <background-darkAqua alignment="center" file="AcrobatBackgroundDarkMode_copy.png" mime-type
    <options hostArchitectures="x86_64,arm64" customize="never"/>
    <choice id="EntryPackage" start_visible="false" title="EntryPackage">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI" onConclusion="none" ver
    </choice>
    <choice customLocation="/Applications/Adobe Acrobat DC" description="DESCRIPTION_APPLICATIO
        <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none" version="26.
        <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none" version="26.
        <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none" version="26.
    </choice>
    <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig" star
```

Distribution

background, background-darkAqua

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
<?xml version="1.0" ?>
    <installer-gui-script minSpecVersion="2">
    <domains enable_anywhere="false" enable_currentUserHome="false" enable_localSystem="true"/>
    <title>Adobe Acrobat</title>
    <!-- welcome file="Welcome.rtf" mime-type="text/rtf" / -->
    <!--    <readme file="ReadMe.html" mime-type="text/html"/>-->
    <background alignment="center" mime-type="image/png" scaling="tofit" file="AcrobatBackgroun
    <background-darkAqua alignment="center" file="AcrobatBackgroundDarkMode_copy.png" mime-type=
    <options hostArchitectures="x86_64,arm64" customize="never"/>
    <choice id="EntryPackage" start_visible="false" title="EntryPackage">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI" onConclusion="none" vers
    </choice>
    <choice customLocation="/Applications/Adobe Acrobat DC" description="DESCRIPTION_APPLICATIO
        <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none" version="26.(
        <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none" version="26.
        <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none" version="26.(
    </choice>
    <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig" start
```

Distribution

welcome, readme, license, conclusion

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
<?xml version="1.0" ?>
    <installer-gui-script minSpecVersion="2">
    <domains enable_anywhere="false" enable_currentUserHome="false" enable_localSystem="true"/>
    <title>Adobe Acrobat</title>
    <!-- welcome file="Welcome.rtf" mime-type="text/rtf" / -->
    <!--    <readme file="ReadMe.html" mime-type="text/html"/>-->
    <background alignment="center" mime-type="image/png" scaling="tofit" file="AcrobatBackgroun
    <background-darkAqua alignment="center" file="AcrobatBackgroundDarkMode_copy.png" mime-type=
    <options hostArchitectures="x86_64,arm64" customize="never"/>
    <choice id="EntryPackage" start_visible="false" title="EntryPackage">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI" onConclusion="none" vers
    </choice>
    <choice customLocation="/Applications/Adobe Acrobat DC" description="DESCRIPTION_APPLICATIO
        <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none" version="26.(
        <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none" version="26.
        <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none" version="26.(
    </choice>
    <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig" start
```

Distribution

options

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
1   <?xml version="1.0" ?>
2       <installer-gui-script minSpecVersion="2">
3       <domains enable_anywhere="false" enable_currentUserHome="false" enable_localSystem="true"/>
4       <title>Adobe Acrobat</title>
5       <!-- welcome file="Welcome.rtf" mime-type="text/rtf" / -->
6       <!--    <readme file="ReadMe.html" mime-type="text/html"/>-->
7       <background alignment="center" mime-type="image/png" scaling="tofit" file="AcrobatBackgroun
8       <background-darkAqua alignment="center" file="AcrobatBackgroundDarkMode_copy.png" mime-type=
9       <options hostArchitectures="x86_64,arm64" customize="never"/>
10      <choice id="EntryPackage" start_visible="false" title="EntryPackage">
11          <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI" onConclusion="none" vers
12      </choice>
13      <choice customLocation="/Applications/Adobe Acrobat DC" description="DESCRIPTION_APPLICATIO
14          <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none" version="26.(
15          <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none" version="26.
16          <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none" version="26.(
17      </choice>
18      <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig" start
```

Distribution

domains

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
1  <?xml version="1.0" ?>
2      <installer-gui-script minSpecVersion="2">
3      <domains enable_anywhere="false" enable_currentUserHome="false" enable_localSystem="true"/>
4      <title>Adobe Acrobat</title>
5      <!-- welcome file="Welcome.rtf" mime-type="text/rtf" / -->
6      <!--    <readme file="ReadMe.html" mime-type="text/html"/>-->
7      <background alignment="center" mime-type="image/png" scaling="tofit" file="AcrobatBackgroun
8      <background-darkAqua alignment="center" file="AcrobatBackgroundDarkMode_copy.png" mime-type
9      <options hostArchitectures="x86_64,arm64" customize="never"/>
10     <choice id="EntryPackage" start_visible="false" title="EntryPackage">
11         <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI" onConclusion="none" ver
12     </choice>
13     <choice customLocation="/Applications/Adobe Acrobat DC" description="DESCRIPTION_APPLICATIO
14         <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none" version="26.
15         <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none" version="26.
16         <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none" version="26.
17     </choice>
18     <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig" star
```

Distribution

choice

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
    <options hostArchitectures="x86_64,arm64" customize="never"/>
    <choice id="EntryPackage" start_visible="false" title="EntryPackage">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI"
onConclusion="none" version="26.002.21901">entryPackage_AcroPro_Full.pkg</pkg-ref>
    </choice>
    <choice customLocation="/Applications/Adobe Acrobat DC"
description="DESCRIPTION_APPLICATION" description-mime-type="text/plain" enabled="false"
id="CoreApp" start_enabled="false" title="CoreApplication">
        <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none"
version="26.002.21901">application_mini.pkg</pkg-ref>
        <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none"
version="26.002.21901">application_inter.pkg</pkg-ref>
        <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none"
version="26.002.21901">application_full.pkg</pkg-ref>
    </choice>
    <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig"
start_visible="false" title="Application Config">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.config.pkg.MUI" onConclusion="none"
```

Distribution

choice

Microsoft_365_and_Office_16.113.26092012_Installer.dist — Free Mode

```
35          <line choice="com.microsoft.autoupdate"/>
36          <line choice="com.microsoft.licensing"/>
37          <line choice="com.microsoft.office.fonts"/>
38          <line choice="com.microsoft.office.frameworks"/>
39          <line choice="com.microsoft.office.proofing"/>
40      </choices-outline>
41      <!-- Choice definitions for each package choice above. -->
42      <choice id="com.microsoft.word" visible="true" title="Microsoft Word"
…   selected="choices['com.microsoft.word'].selected &amp;&amp; shouldInstall('InstallWord',
…   true) &amp;&amp; shouldInstallVersion('InstallWord',
…   choices['com.microsoft.word'].packages[0].version, true)"
…   enabled="shouldInstall('InstallWord', true) &amp;&amp; shouldInstallVersion('InstallWord',
…   choices['com.microsoft.word'].packages[0].version, true)" description="Microsoft Word">
43          <pkg-ref id="com.microsoft.word">
44              <must-close>
45                  <app id="com.microsoft.Word"/>
46              </must-close>
47          </pkg-ref>
```

Distribution

pkg-ref

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
    <options hostArchitectures="x86_64,arm64" customize="never"/>
    <choice id="EntryPackage" start_visible="false" title="EntryPackage">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.entryPackage.pkg.MUI"
onConclusion="none" version="26.002.21901">entryPackage_AcroPro_Full.pkg</pkg-ref>
    </choice>
    <choice customLocation="/Applications/Adobe Acrobat DC"
description="DESCRIPTION_APPLICATION" description-mime-type="text/plain" enabled="false"
id="CoreApp" start_enabled="false" title="CoreApplication">
        <pkg-ref id="com.adobe.acrobat.DC.scamini.app.pkg.MUI" onConclusion="none"
version="26.002.21901">application_mini.pkg</pkg-ref>
        <pkg-ref id="com.adobe.acrobat.DC.scainter.app.pkg.MUI" onConclusion="none"
version="26.002.21901">application_inter.pkg</pkg-ref>
        <pkg-ref id="com.adobe.acrobat.DC.scafull.app.pkg.MUI" onConclusion="none"
version="26.002.21901">application_full.pkg</pkg-ref>
    </choice>
    <choice description="SCA App Config" description-mime-type="text/plain" id="AppConfig"
start_visible="false" title="Application Config">
        <pkg-ref id="com.adobe.acrobat.DC.scafull.config.pkg.MUI" onConclusion="none"
```

Distribution

pkg-ref

GoogleDrive.dist — Free Mode

```
21      </choice>
22      <choice id="installer_choice_2" title="Google Drive Intel" description="">
23          <pkg-ref id="com.google.drivefs.x86_64"/>
24      </choice>
25      <choice id="installer_choice_3" title="Google Drive Arm" description="">
26          <pkg-ref id="com.google.drivefs.arm64"/>
27      </choice>
28      <choice id="installer_choice_4" title="GSuite Shortcuts" description="">
29          <pkg-ref id="com.google.drivefs.shortcuts"/>
30      </choice>
31      <pkg-ref id="com.google.GoogleUpdater" auth="Root"
…   packageIdentifier="com.google.Keystone" installKBytes="25308"
…   updateKBytes="0">#GoogleUpdater.pkg</pkg-ref>
32      <pkg-ref id="com.google.drivefs.arm64" active="is_arm()" auth="Root"
…   version="131.0.2.0" installKBytes="362355"
…   updateKBytes="0">#GoogleDrive_arm64.pkg</pkg-ref>
33      <pkg-ref id="com.google.drivefs.x86_64" active="is_intel()" auth="Root"
…   version="131.0.2.0" installKBytes="364754"
```

Distribution

choices-outline

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
40      </choice>
41      <choice id="ExitPackage" start_visible="false" title="ExitPackage">
42          <pkg-ref id="com.adobe.acrobat.DC.scafull.exitPackage.pkg.MUI" onConclusion="none" vers
43      </choice>
44      <choices-outline>
45          <line choice="EntryPackage"/>
46          <!--             <line choice="CoreAppMini"/>
47              <line choice="CoreAppInter"/> -->
48          <line choice="CoreApp"/>
49          <line choice="AppConfig"/>
50          <line choice="AppSupportMini"/>
51          <line choice="AppSupportInter"/>
52          <line choice="AppSupport"/>
53          <line choice="PrinterWorkflow"/>
54          <line choice="AcroSCAServicesUpdater"/>
55          <line choice="ARMAgent"/>
56          <line choice="ExitPackage"/>
57      </choices-outline>
```

Distribution

line

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
41    <choice id="ExitPackage" start_visible="false" title="ExitPackage">
42        <pkg-ref id="com.adobe.acrobat.DC.scafull.exitPackage.pkg.MUI" onConclusion="none" vers
43    </choice>
44    <choices-outline>
45        <line choice="EntryPackage"/>
46        <!--            <line choice="CoreAppMini"/>
47            <line choice="CoreAppInter"/> -->
48        <line choice="CoreApp"/>
49        <line choice="AppConfig"/>
50        <line choice="AppSupportMini"/>
51        <line choice="AppSupportInter"/>
52        <line choice="AppSupport"/>
53        <line choice="PrinterWorkflow"/>
54        <line choice="AcroSCAServicesUpdater"/>
55        <line choice="ARMAgent"/>
56        <line choice="ExitPackage"/>
57    </choices-outline>
58    <installation-check script="InstallationCheck()">
```

Distribution

installation-check

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
55          <line choice="ARMAgent"/>
56          <line choice="ExitPackage"/>
57      </choices-outline>
58      <installation-check script="InstallationCheck()">
59          <ram min-gb="1"/>
60      </installation-check>
61      <volume-check script="VolumeCheck()">
62          <allowed-os-versions>
63              <os-version min="13.0"/>
64          </allowed-os-versions>
65      </volume-check>
66      <script><![CDATA[
67          var gOSMinimumVersion = '13.0';
68          function InstallationCheck()
69          {
70              if(system.compareVersions(system.version.ProductVersion, gOSMinimumVersion) == -1)
71              {
72                  my.result.title = system.localizedString('ERROR_SYSTEM_VERSION_TITLE');
```

Distribution

volume-check

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
55          <line choice="ARMAgent"/>
56          <line choice="ExitPackage"/>
57      </choices-outline>
58      <installation-check script="InstallationCheck()">
59          <ram min-gb="1"/>
60      </installation-check>
61      <volume-check script="VolumeCheck()">
62          <allowed-os-versions>
63              <os-version min="13.0"/>
64          </allowed-os-versions>
65      </volume-check>
66      <script><![CDATA[
67          var gOSMinimumVersion = '13.0';
68          function InstallationCheck()
69          {
70              if(system.compareVersions(system.version.ProductVersion, gOSMinimumVersion) == -1)
71              {
72                  my.result.title = system.localizedString('ERROR_SYSTEM_VERSION_TITLE');
```

Distribution

allowed-os-versions

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
55          <line choice="ARMAgent"/>
56          <line choice="ExitPackage"/>
57      </choices-outline>
58      <installation-check script="InstallationCheck()">
59          <ram min-gb="1"/>
60      </installation-check>
61      <volume-check script="VolumeCheck()">
62          <allowed-os-versions>
63              <os-version min="13.0"/>
64          </allowed-os-versions>
65      </volume-check>
66      <script><![CDATA[
67          var gOSMinimumVersion = '13.0';
68          function InstallationCheck()
69          {
70              if(system.compareVersions(system.version.ProductVersion, gOSMinimumVersion) == -1)
71              {
72                  my.result.title = system.localizedString('ERROR_SYSTEM_VERSION_TITLE');
```

Distribution

script

AcrobatSCADC2600221901_MUI.dist

Free Mode

```
66  <script>
67      <![CDATA[
68      var gOSMinimumVersion = '13.0';
69      function InstallationCheck()
70      {
71          if(system.compareVersions(system.version.ProductVersion, gOSMinimumVersion) == -1)
72          {
73              my.result.title = system.localizedString('ERROR_SYSTEM_VERSION_TITLE');
74              my.result.message = system.localizedStringWithFormat('ERROR_SYSTEM_VERSION_MSG')
75              my.result.type = 'Fatal';
76              return false;
77          }
78
79          return true;
80      }
81
82      function VolumeCheck()
83      {
```

Distribution

script

GoogleDrive.dist

Free Mode

```
35    <script><![CDATA[
36      const CPU_TYPE_MASK = 0x00ffffff;
37      const CPU_TYPE_X86 = 7;
38      const CPU_TYPE_ARM = 12;
39
40      function cputype()
41      {
42        return parseInt(system.sysctl('hw.cputype')) & CPU_TYPE_MASK;
43      }
44
45      function is_intel()
46      {
47        return cputype() === CPU_TYPE_X86;
48      }
49
50      function is_arm()
51      {
52        return cputype() === CPU_TYPE_ARM;
```

Distribution

undocumented

Microsoft_365_and_Office_16.113.26092012_Installer.dist

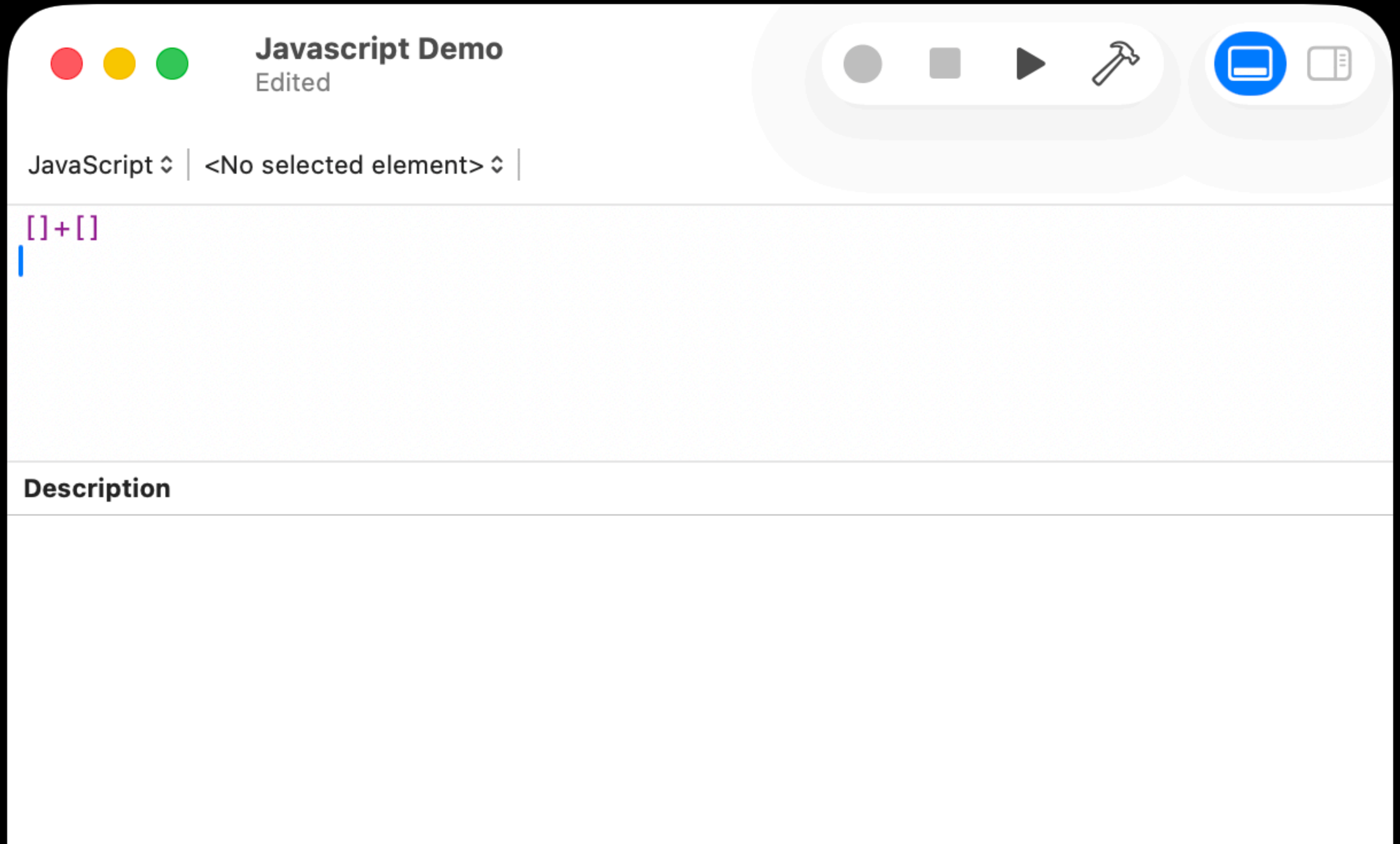
Free Mode

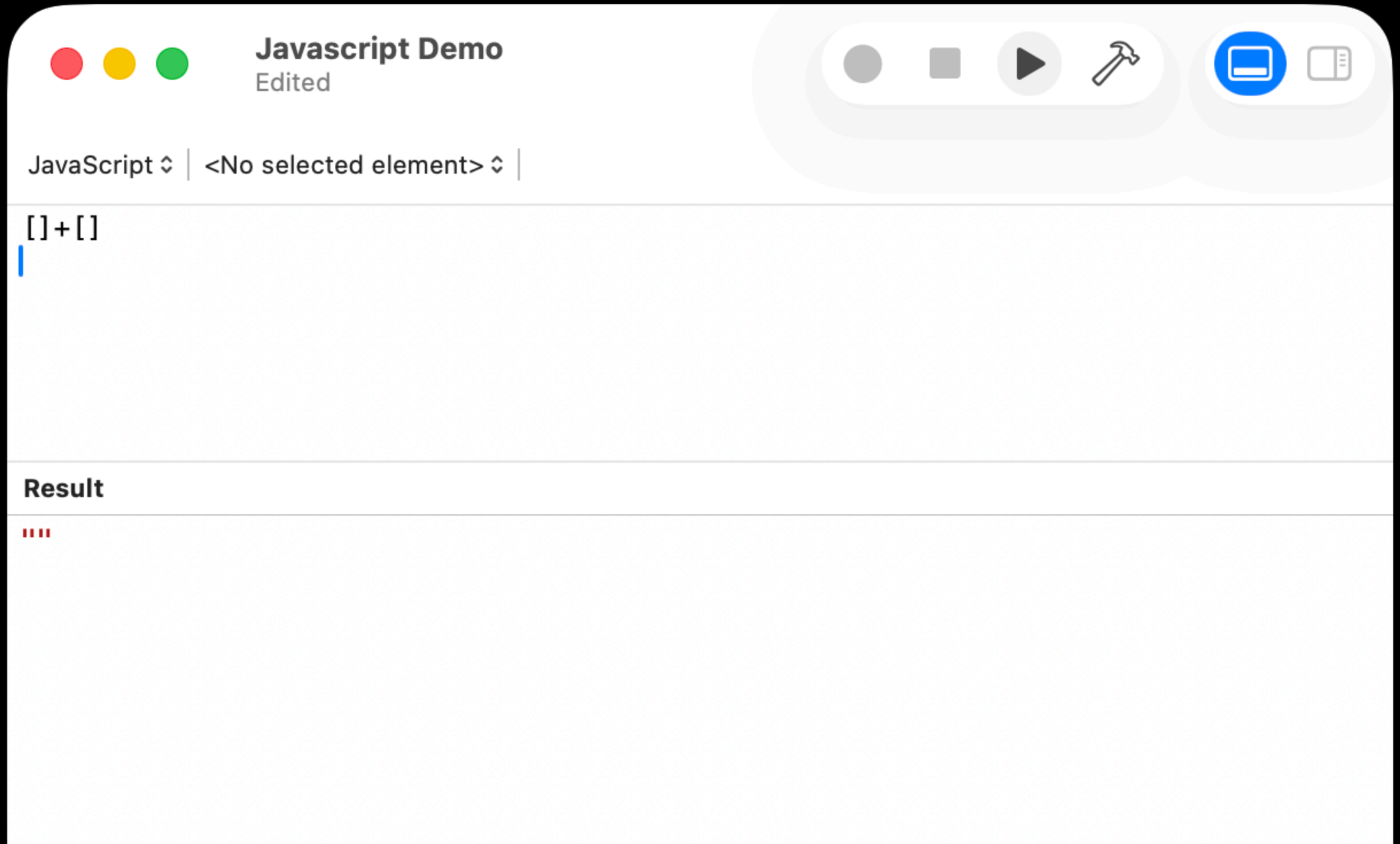
```
<?xml version="1.0" encoding="utf-8"?>
<installer-gui-script minSpecVersion="1">
    <title>Microsoft 365 and Office for Mac</title>
    <organization>com.microsoft</organization>
    <options customize="allow" require-scripts="true" hostArchitectures="arm64,x86_64"/>
    <domains enable_anywhere="true" enable_currentUserHome="false"
enable_localSystem="true"/>
    <!-- Documents displayed at various install steps. -->
    <license file="License.rtf" mime-type="text/html"/>
    <background file="background.png" scaling="none" alignment="bottomleft"/>
    <allowed-os-versions>
        <os-version min="14.0"/>
    </allowed-os-versions>
    <!-- Component packages to be included in the distribution. -->
    <pkg-ref id="com.microsoft.word"
packageIdentifier="com.microsoft.package.Microsoft_Word.app" version="16.113.26092012"
installKBytes="725490" updateKBytes="0">#Microsoft_Word_Internal.pkg</pkg-ref>
    <pkg-ref id="com.microsoft.excel"
```

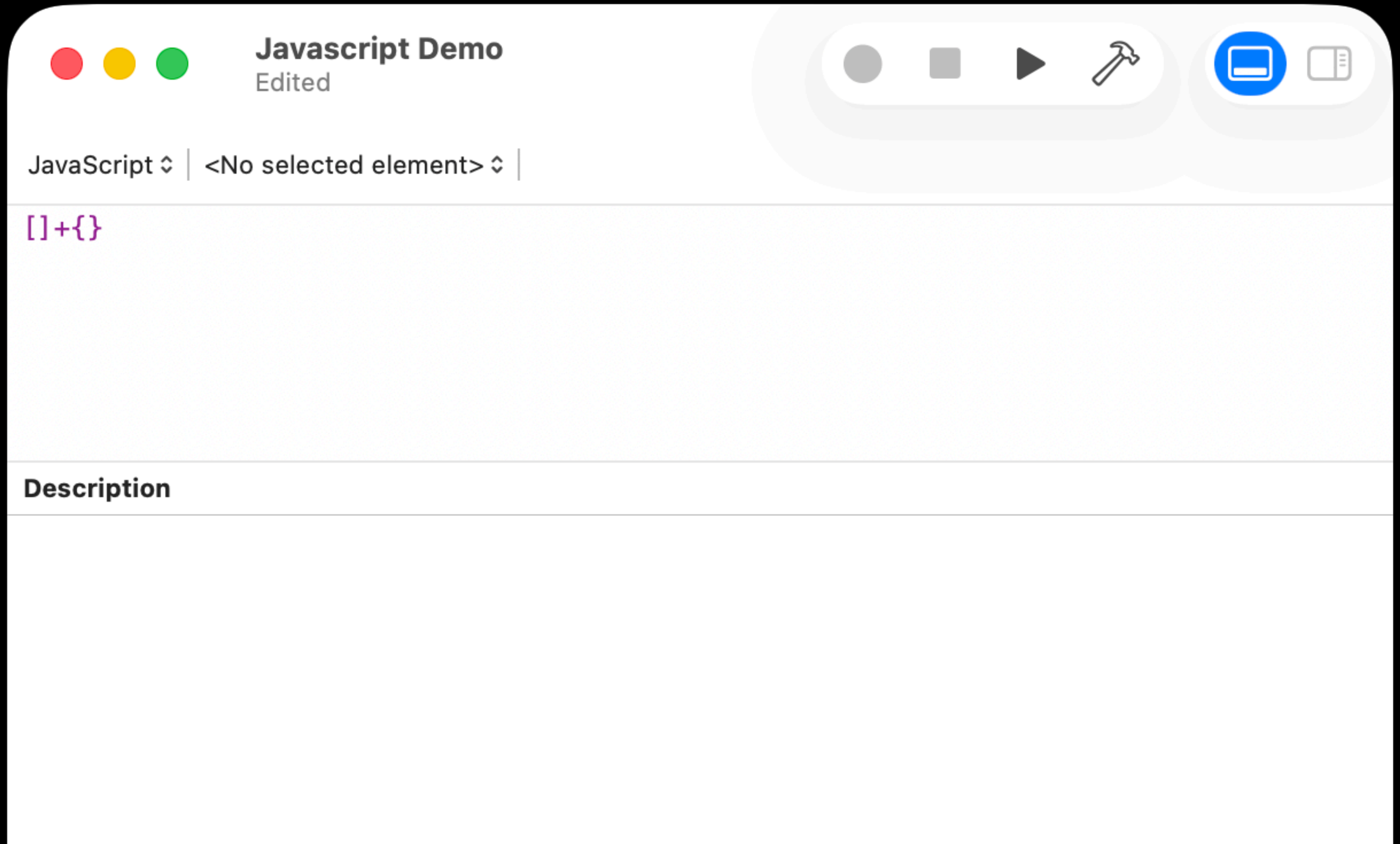
Javascript

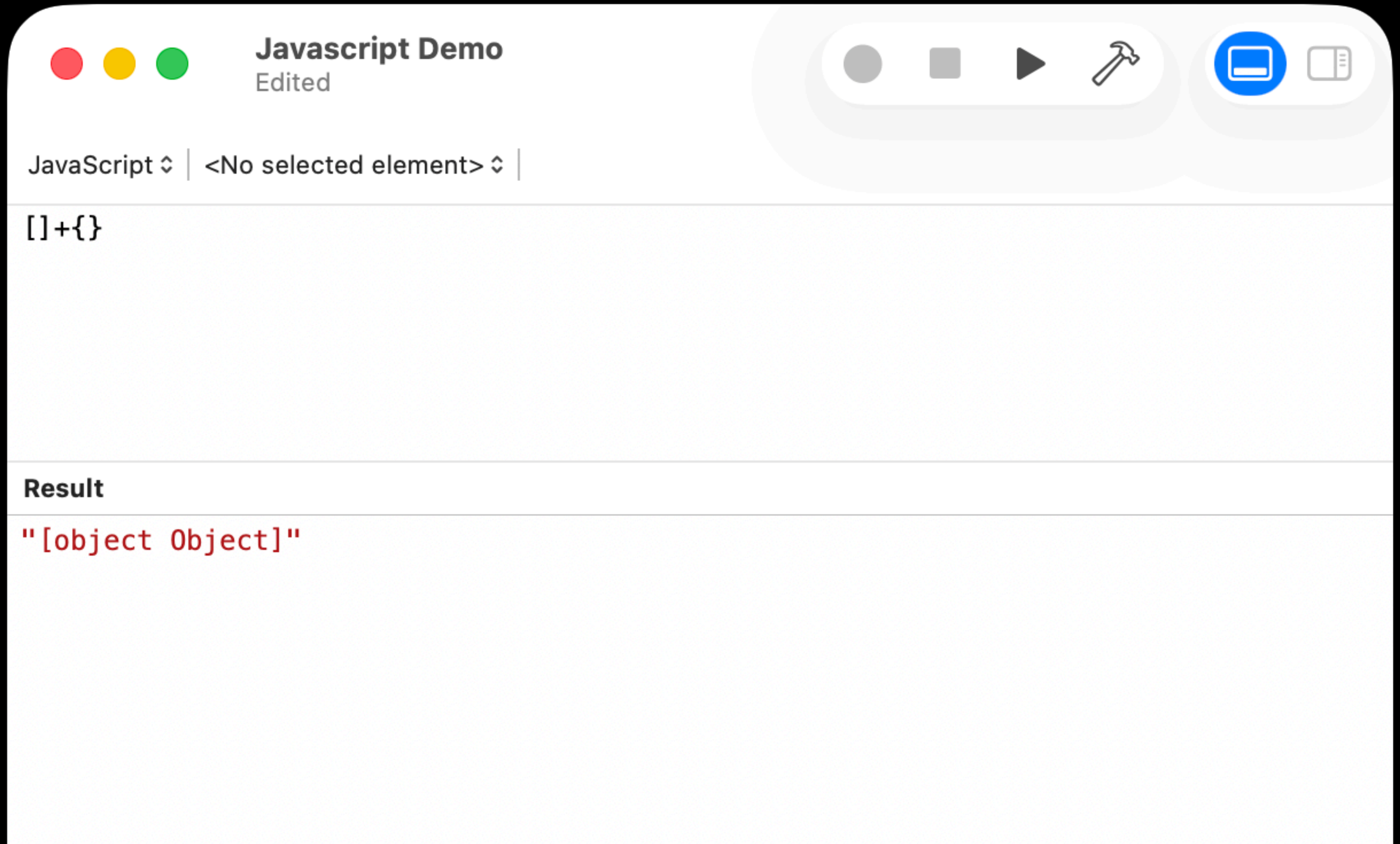
Javascript

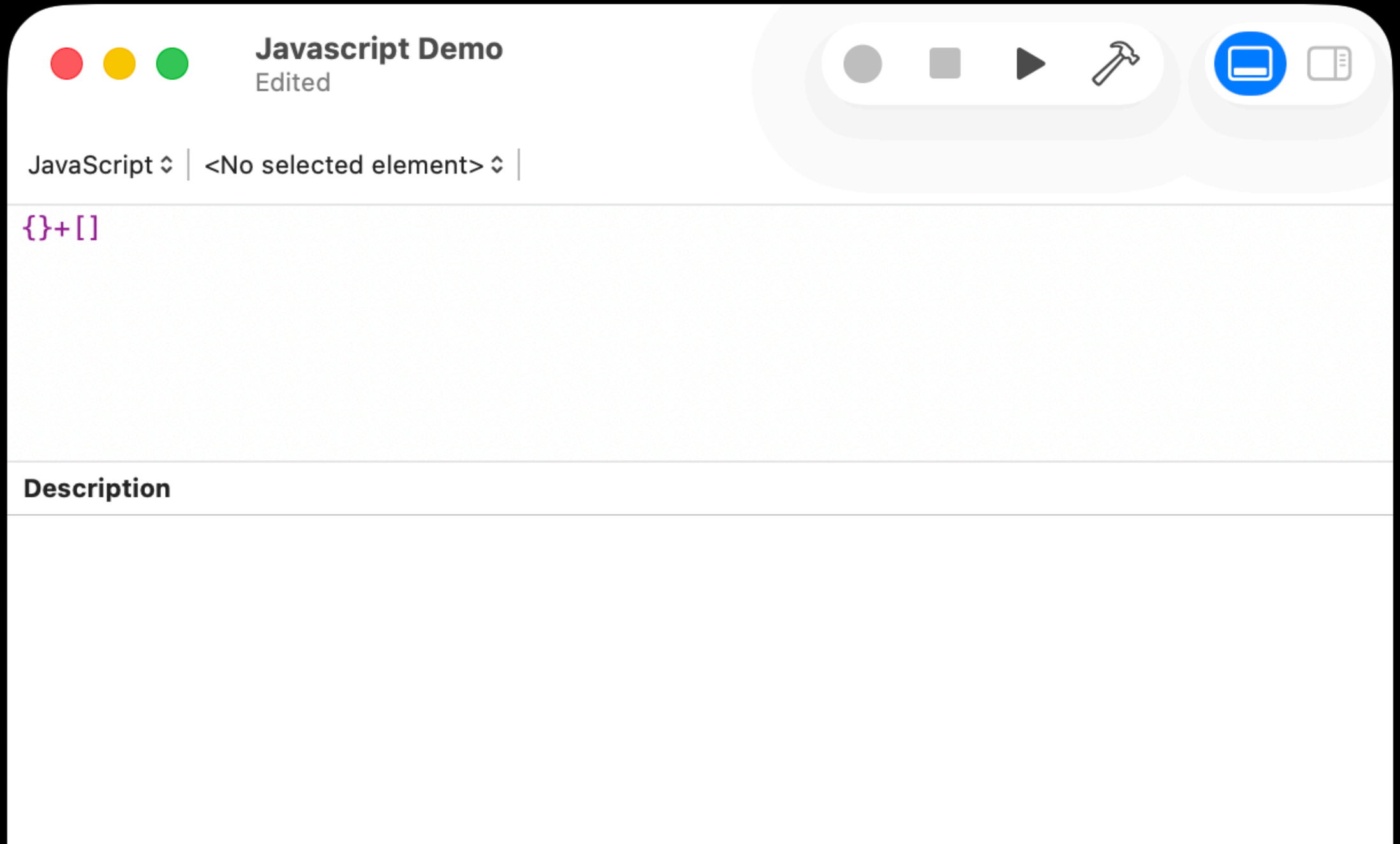
Can be weird

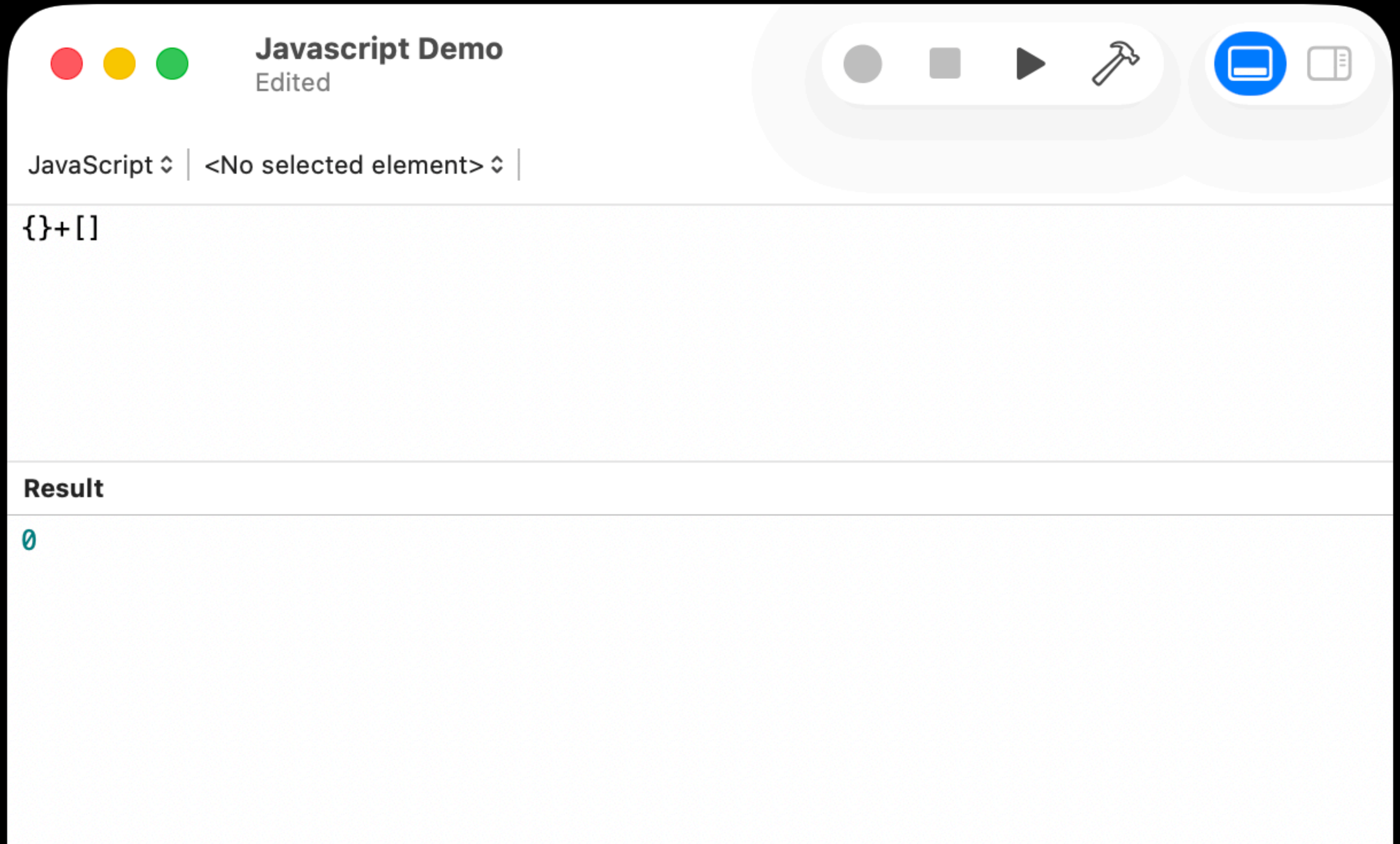

Javascript Demo
Edited
JavaScript
<No selected element>
[]+[]
Description

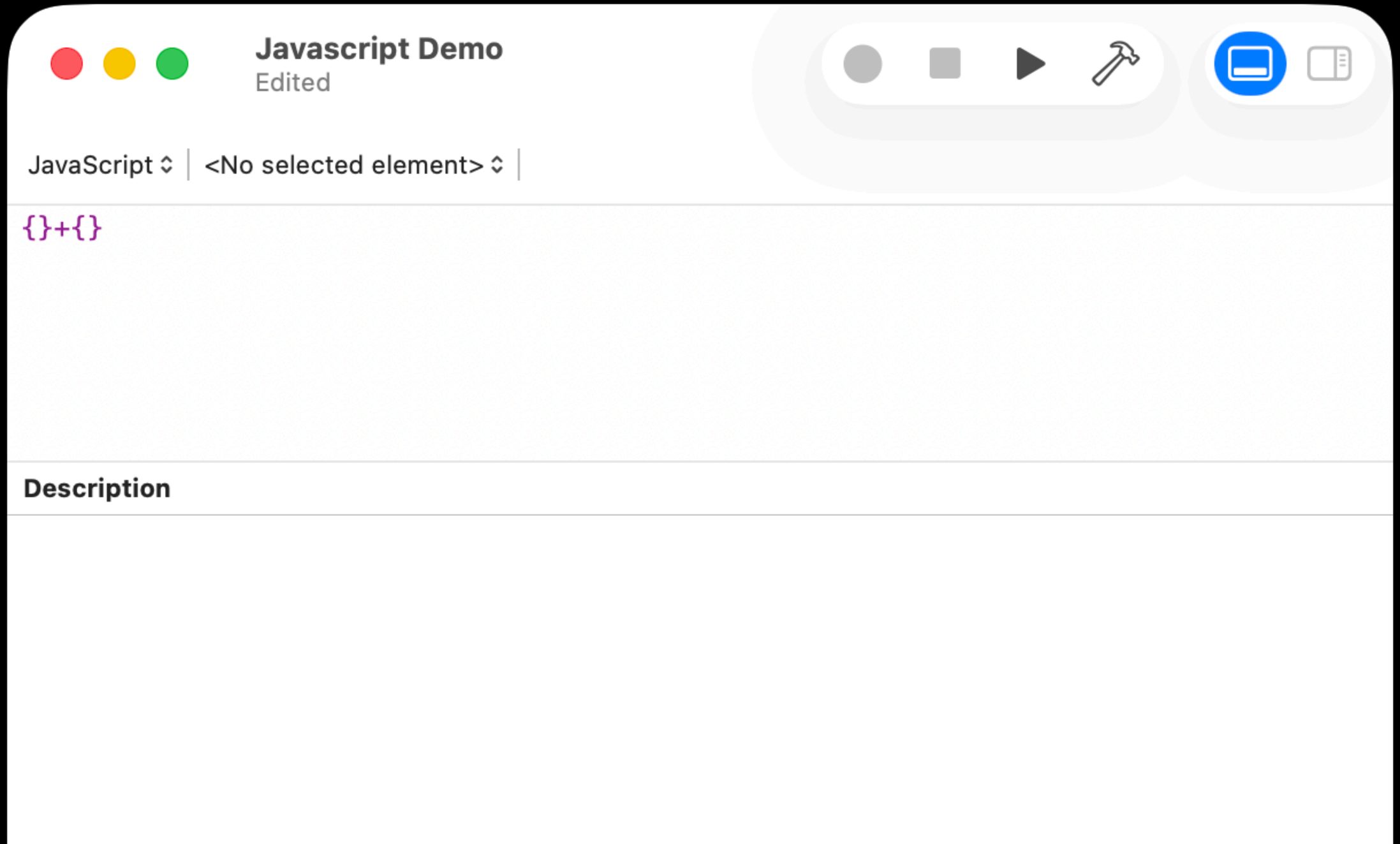

Javascript Demo
Edited
JavaScript
<No selected element>
[]+[]
Result
""

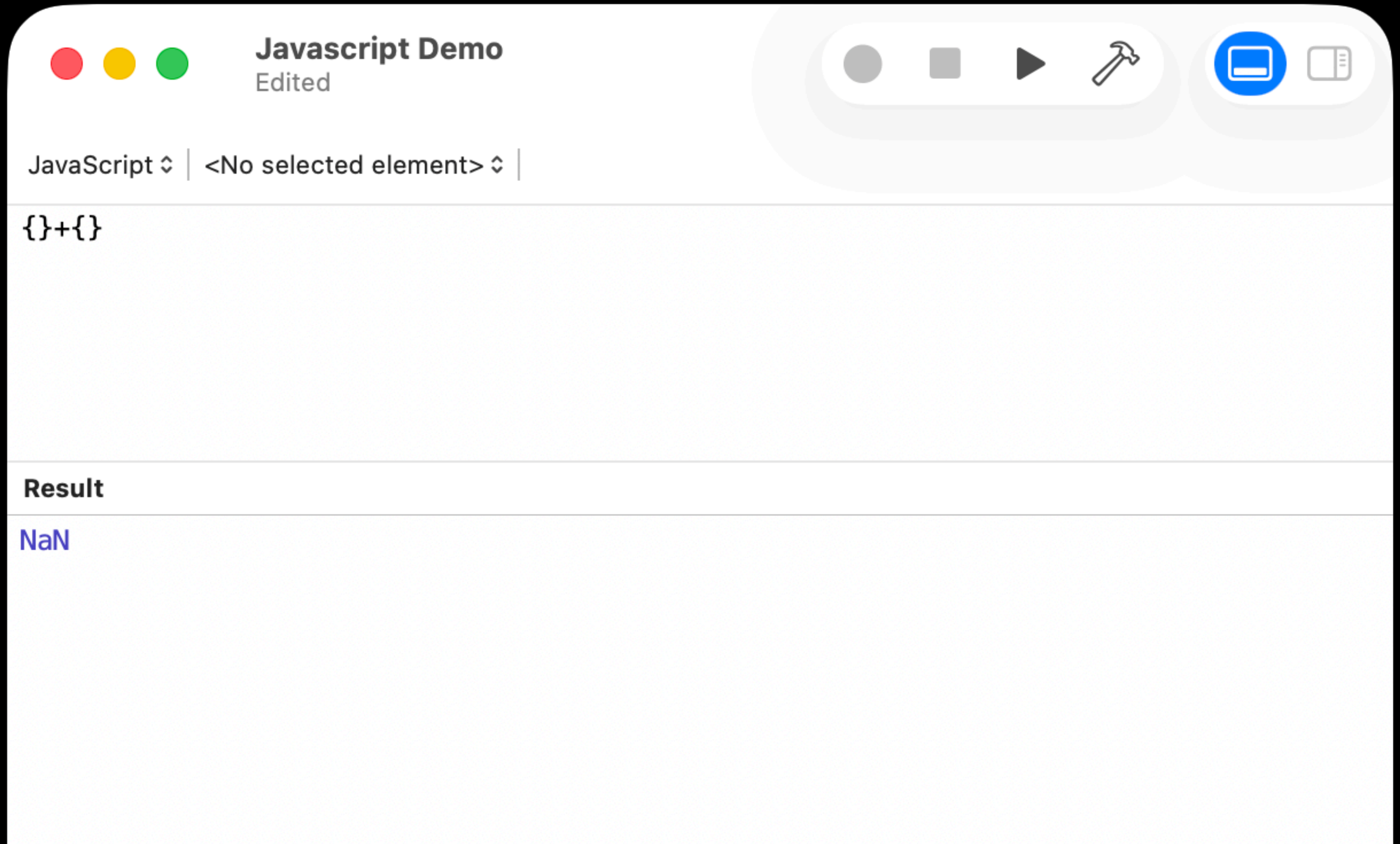

Javascript Demo
Edited
JavaScript
<No selected element>
[]+{}
Description

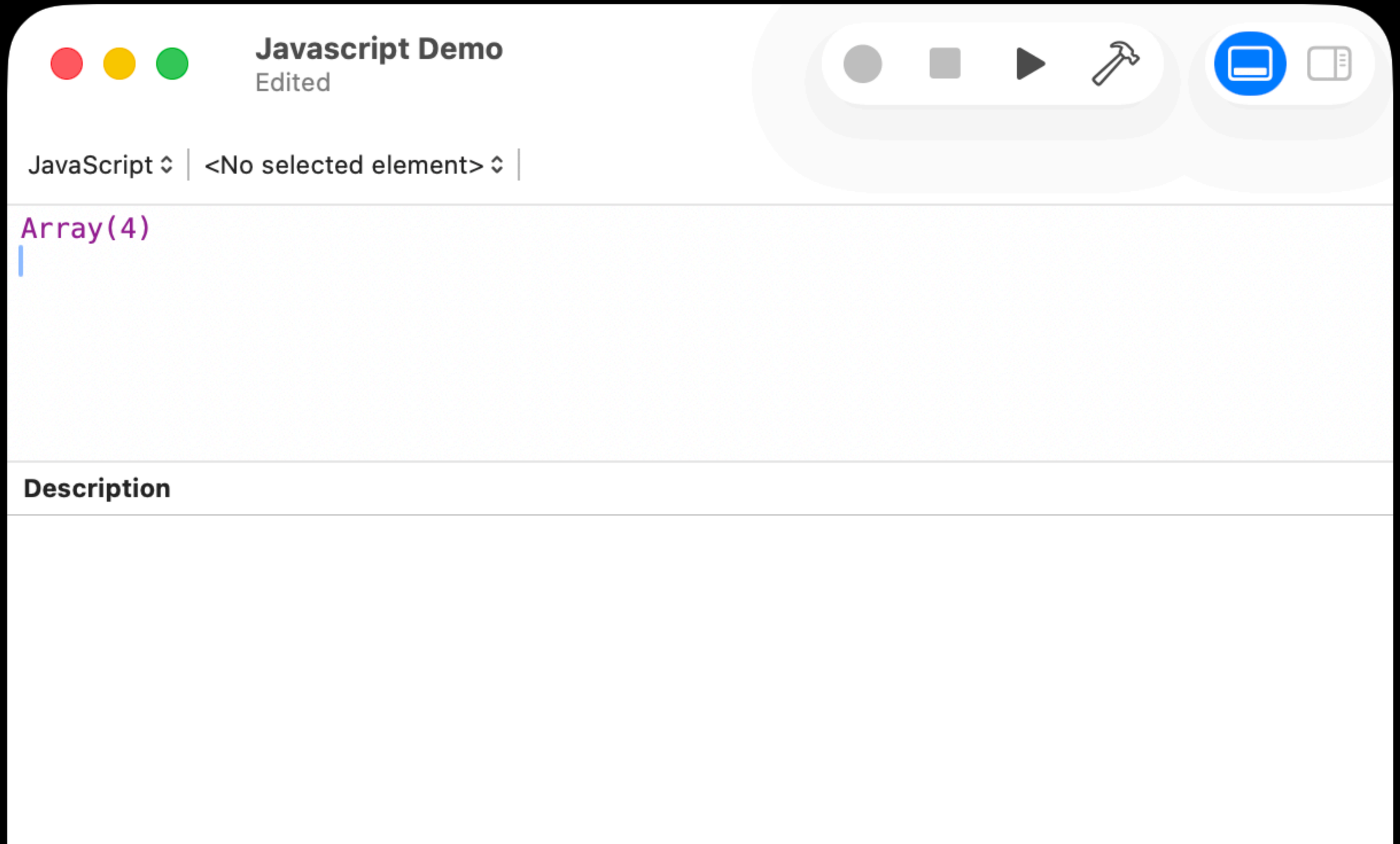

Javascript Demo
Edited
JavaScript
<No selected element>
[]+{}
Result
"[object Object]"

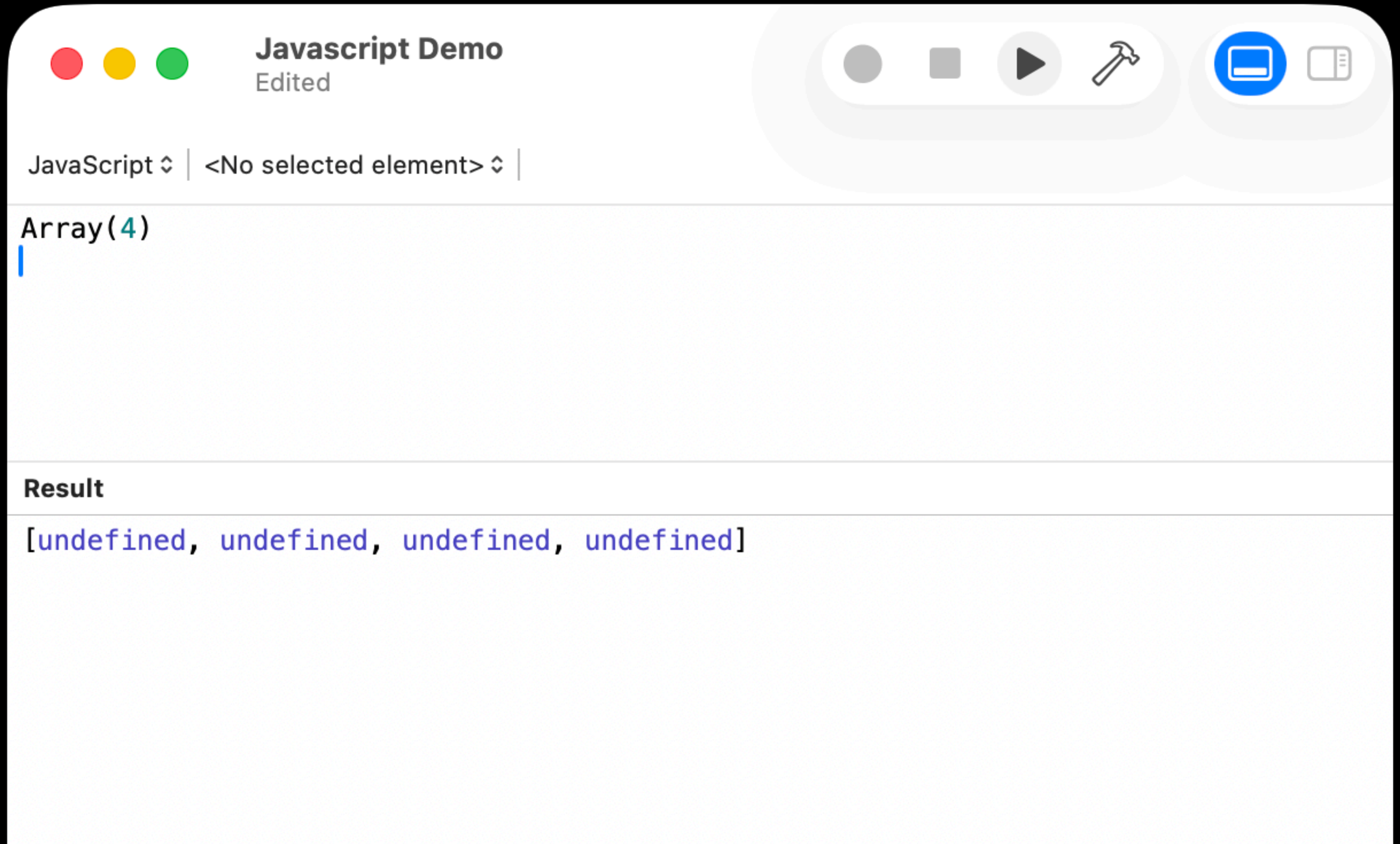

Javascript Demo
Edited
JavaScript
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{}+[]
Description

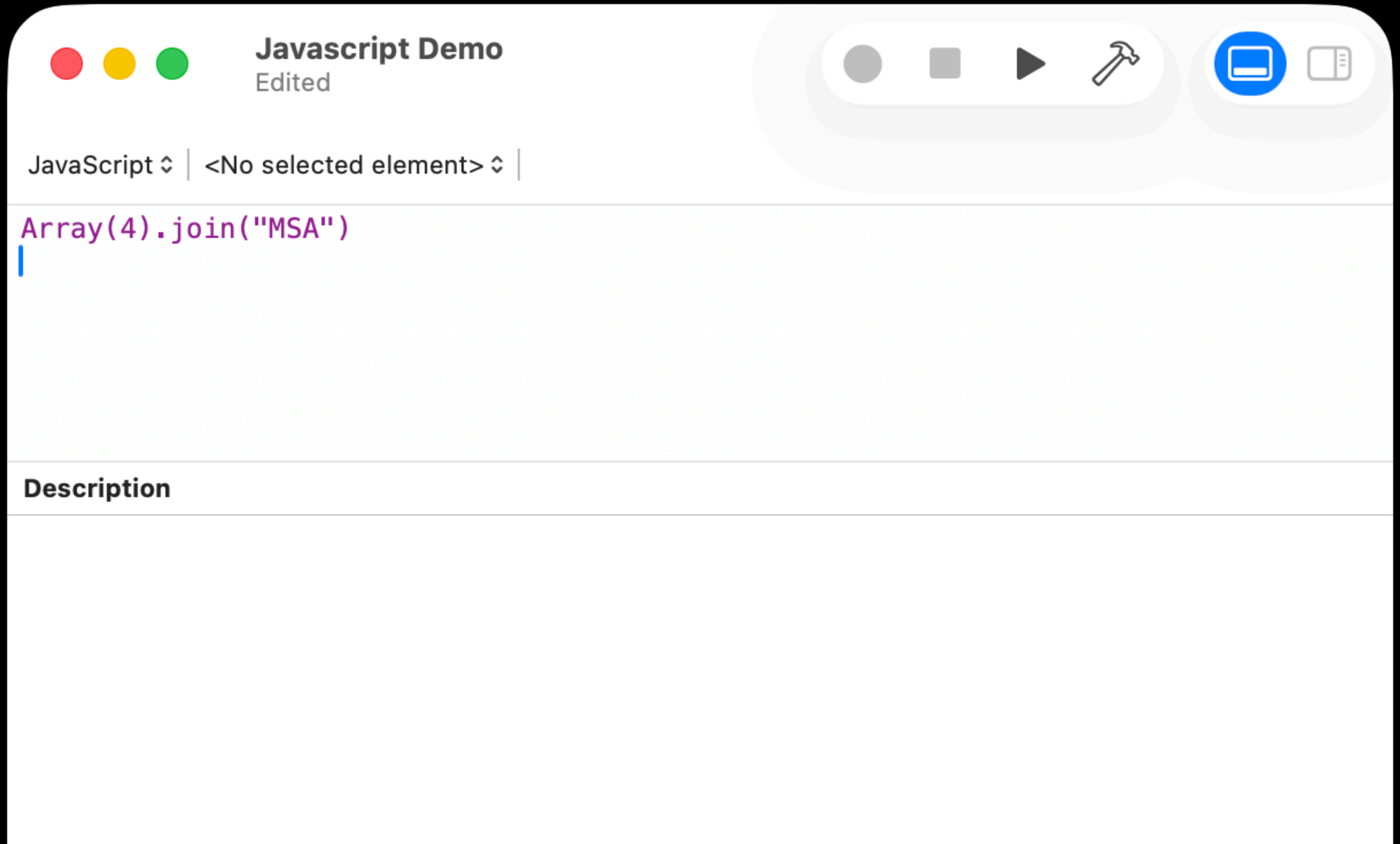

Javascript Demo
Edited
JavaScript
<No selected element>
{}+[]
Result
0

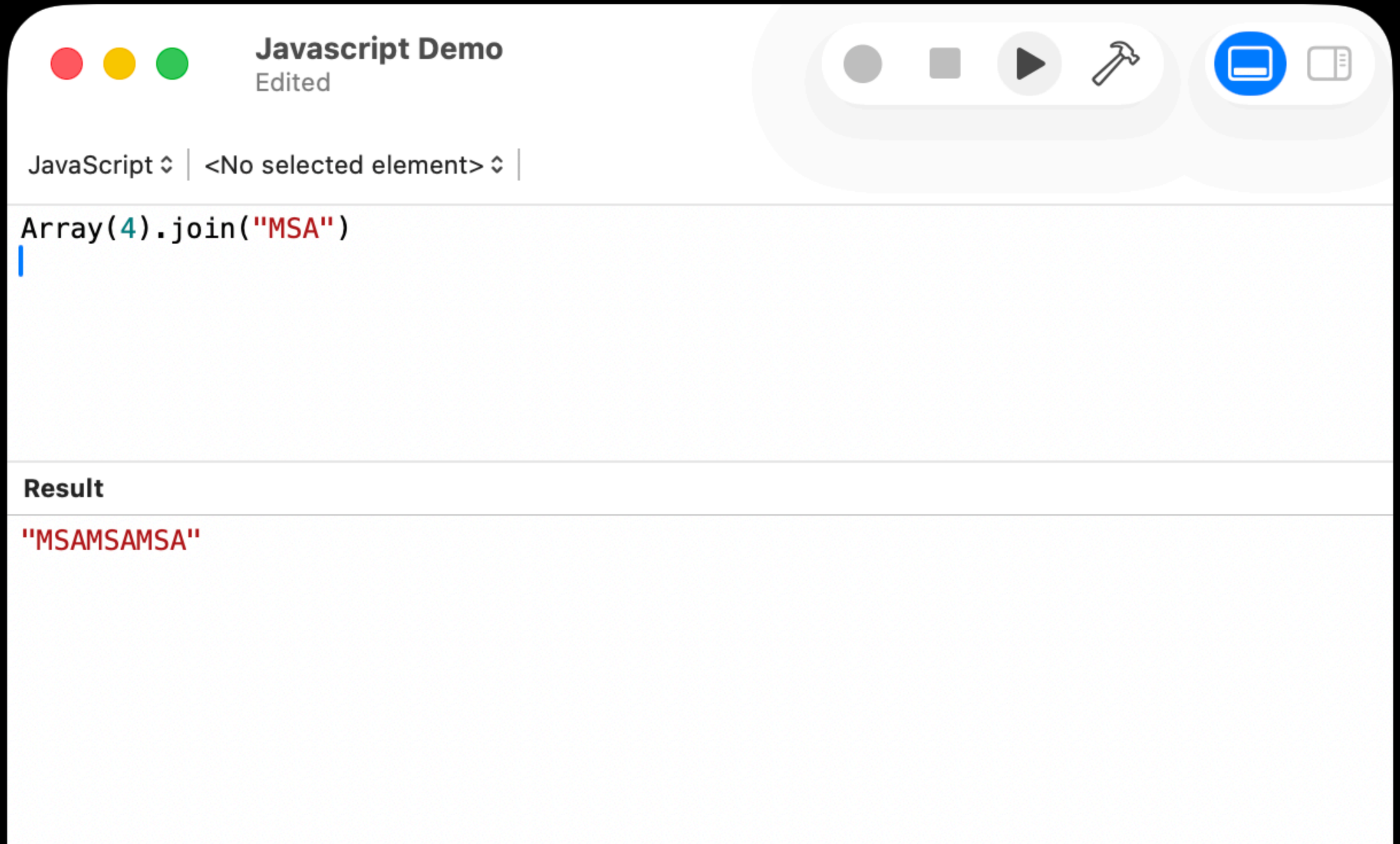

Javascript Demo
Edited
JavaScript
<No selected element>
{}+{}
Description

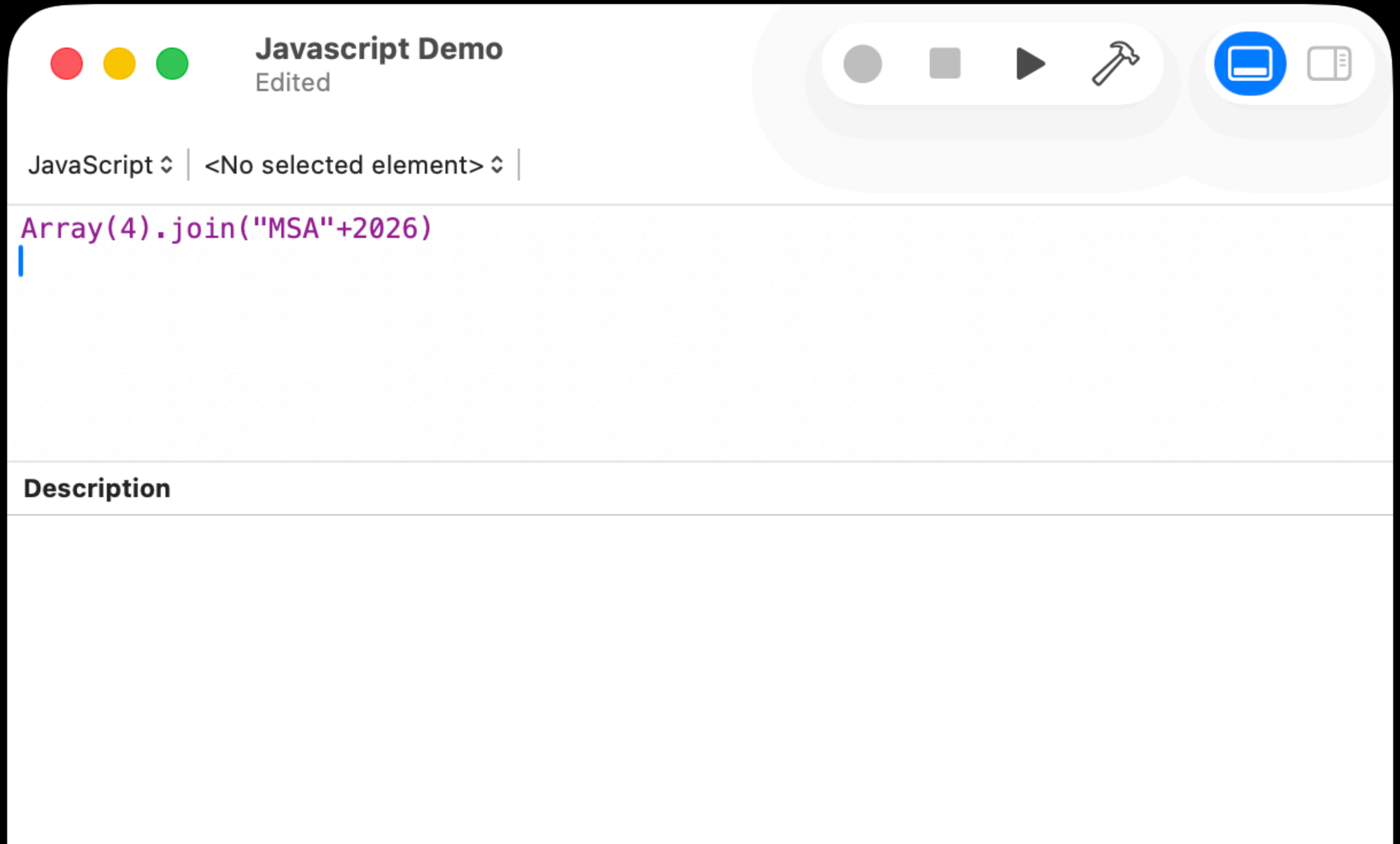

Javascript Demo
Edited
JavaScript
<No selected element>
{}+{}
Result
NaN

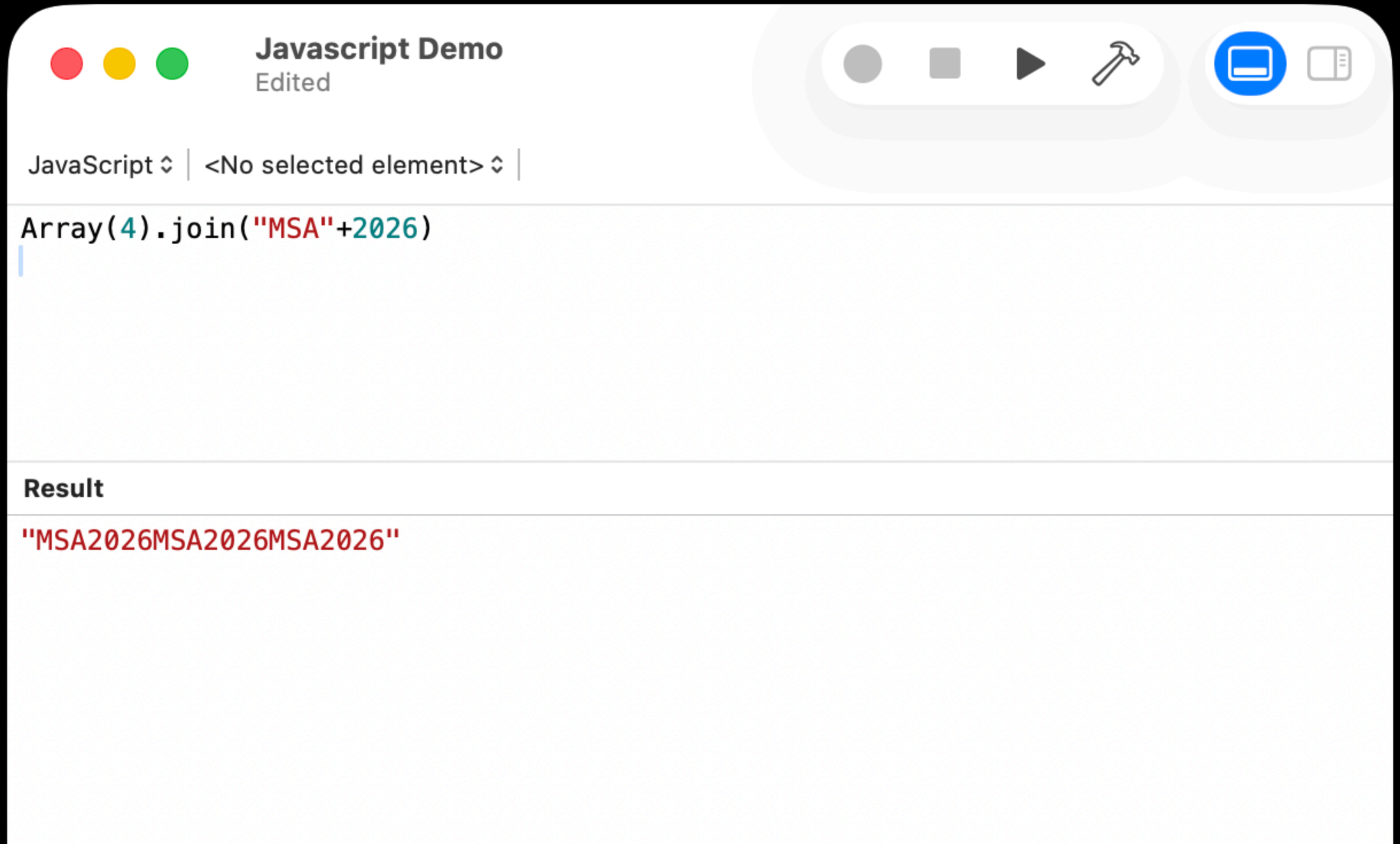

Javascript Demo
Edited
JavaScript
<No selected element>
Array(4)
Description

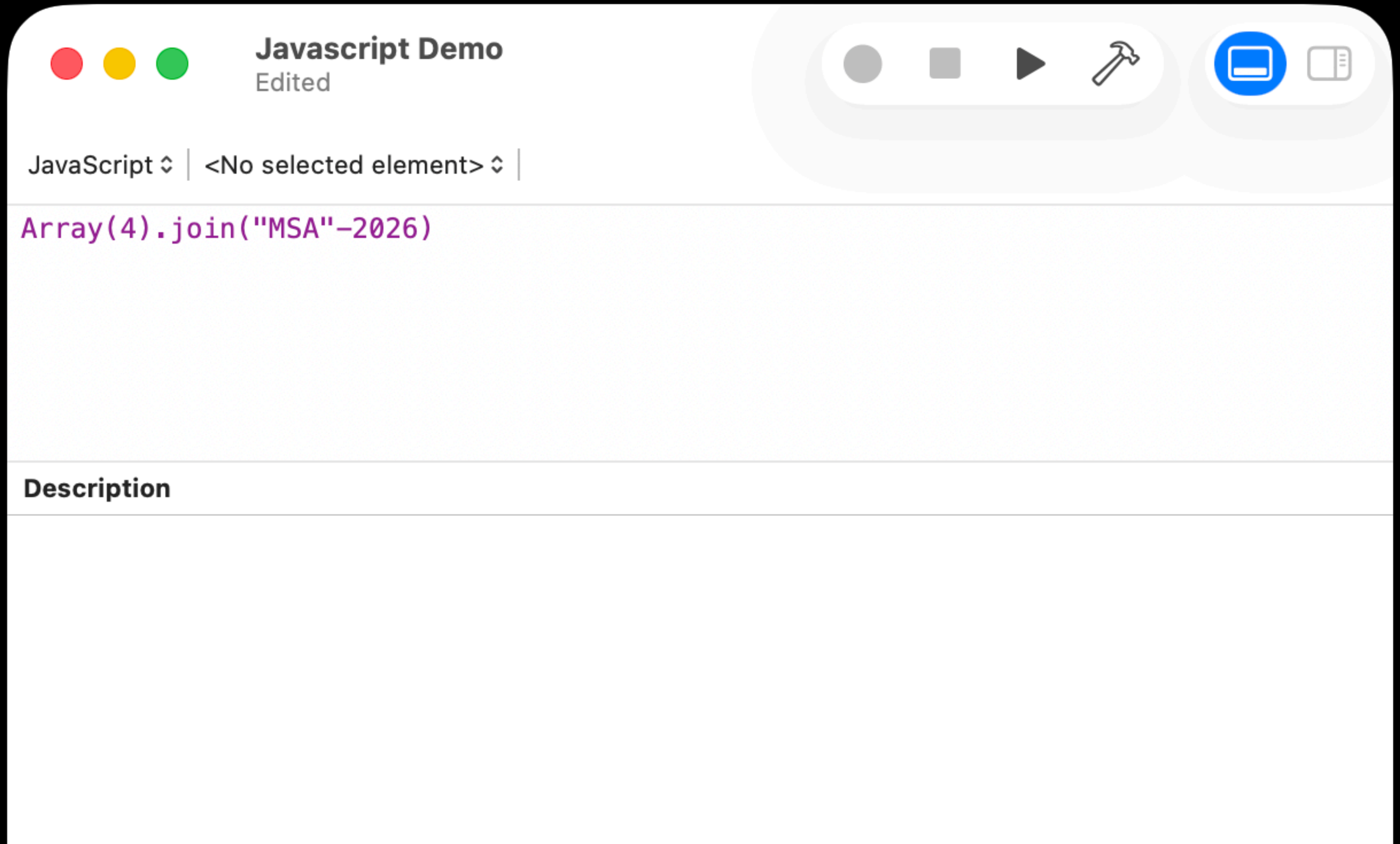

Javascript Demo
Edited
JavaScript
<No selected element>
Array(4)
Result
[undefined, undefined, undefined, undefined]

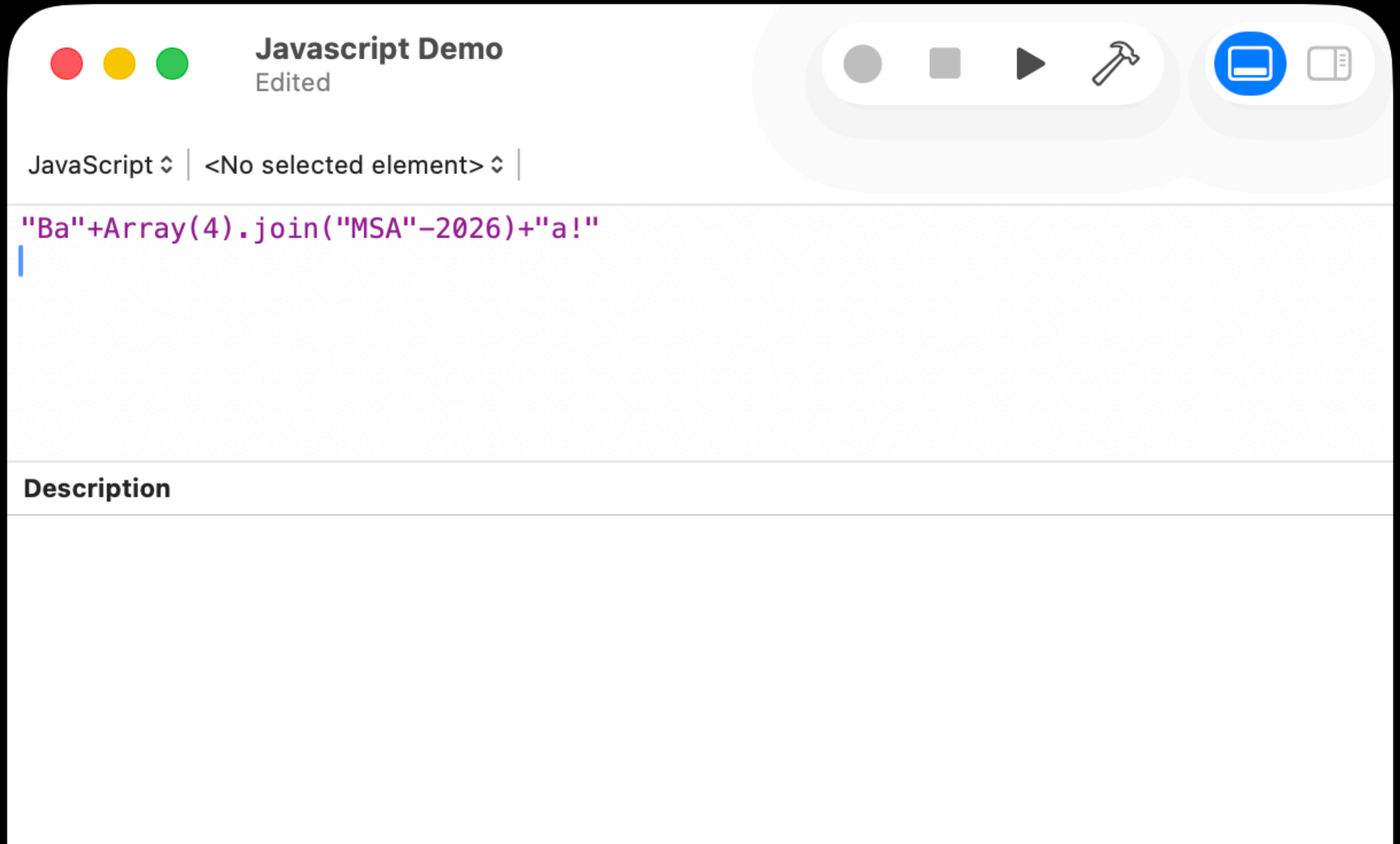

Javascript Demo
Edited
JavaScript
<No selected element>
Array(4).join("MSA")
Description

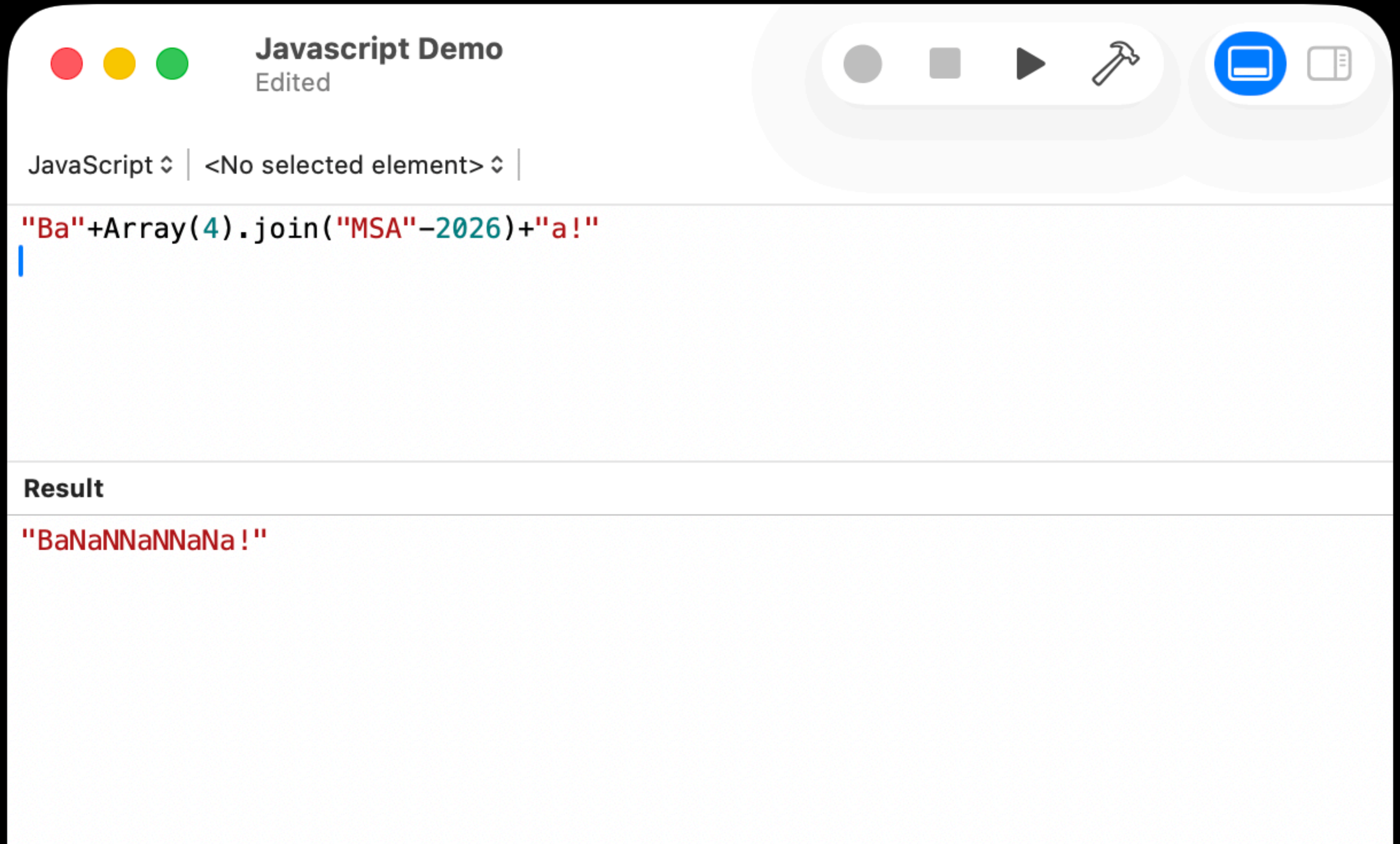

Javascript Demo
Edited
JavaScript
<No selected element>
Array(4).join("MSA")
Result
"MSAMSAMSA"


Javascript Demo
Edited
JavaScript
<No selected element>
Array(4).join("MSA"+2026)
Description


Javascript Demo
Edited
JavaScript
<No selected element>
Array(4).join("MSA"+2026)
Result
"MSA2026MSA2026MSA2026"


Javascript Demo
Edited
JavaScript
<No selected element>
Array(4).join("MSA"-2026)
Description


Javascript Demo
Edited
JavaScript
<No selected element>
"Ba"+Array(4).join("MSA"-2026)+"a!"
Description


Javascript Demo
Edited
JavaScript
<No selected element>
"Ba"+Array(4).join("MSA"-2026)+"a!"
Result
"BaNaNNaNNaNa!"



Questions?