

Advanced Options for the
Application Builder

4D Summit 2023 presentation



Atlanta, USA (October 3rd - 4th, 2023) and Paris, France (October 17th - 18th, 2023)



Keisuke Miyako

Technical Account Manager

In this presentation

- **BUILD APPLICATION**
 - branding
 - setup
 - security



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Not in this presentation

- CI/CD with **GitHub actions**
 - 4D and Git: From Beginner to Expert *by Intissar Elmezroui*
 - How to take advantage of GitHub actions with 4D *by Vanessa Talbot*
- **Build4D component**
 - Build your Compiled Structure or Component with Build4D *by Vanessa Talbot*
 - Create a standalone application with the Build4D component *by Vanessa Talbot*
 - Build an Application with 4D Commands *by Vanessa Talbot*



Advanced Options for the
Application Builder

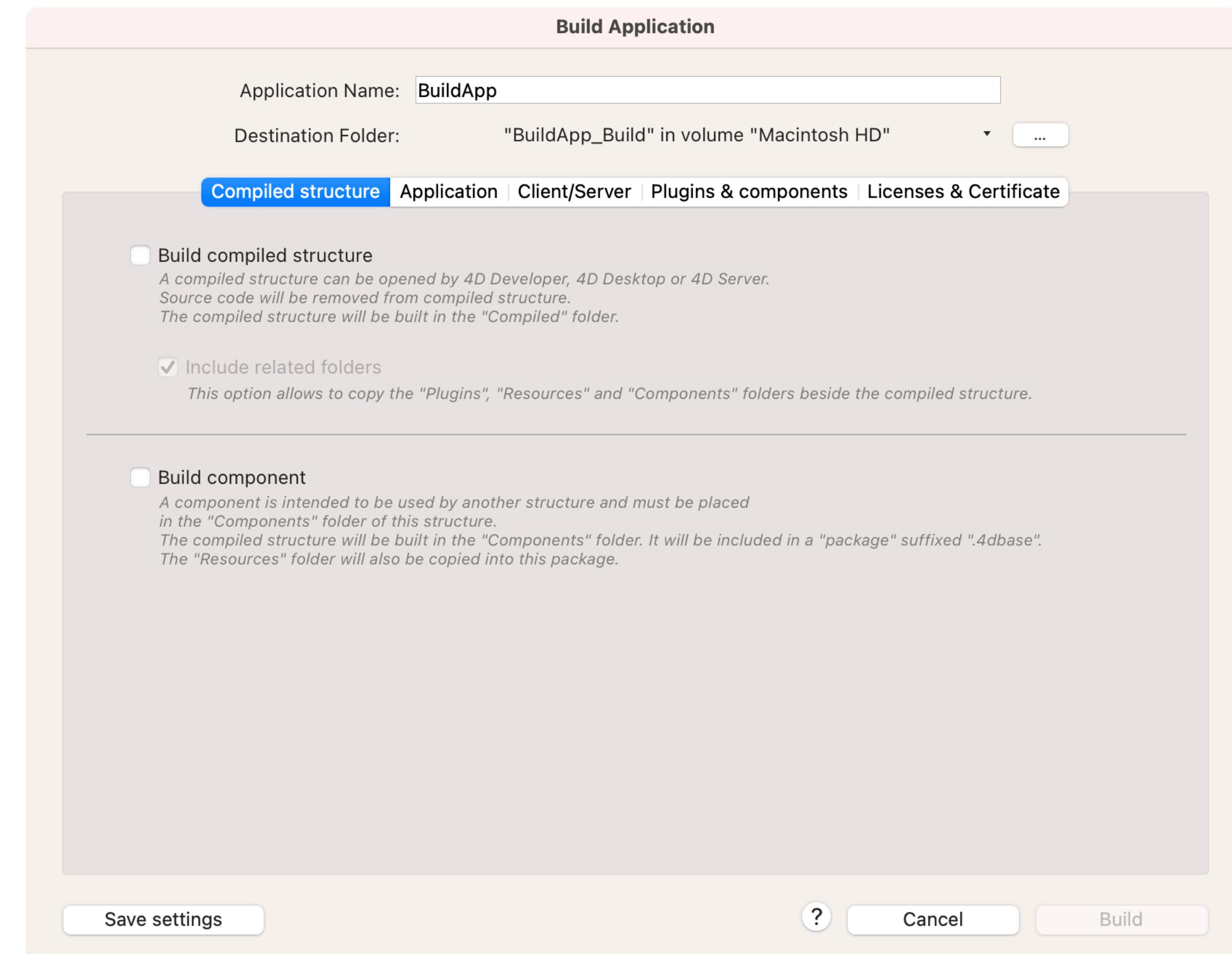
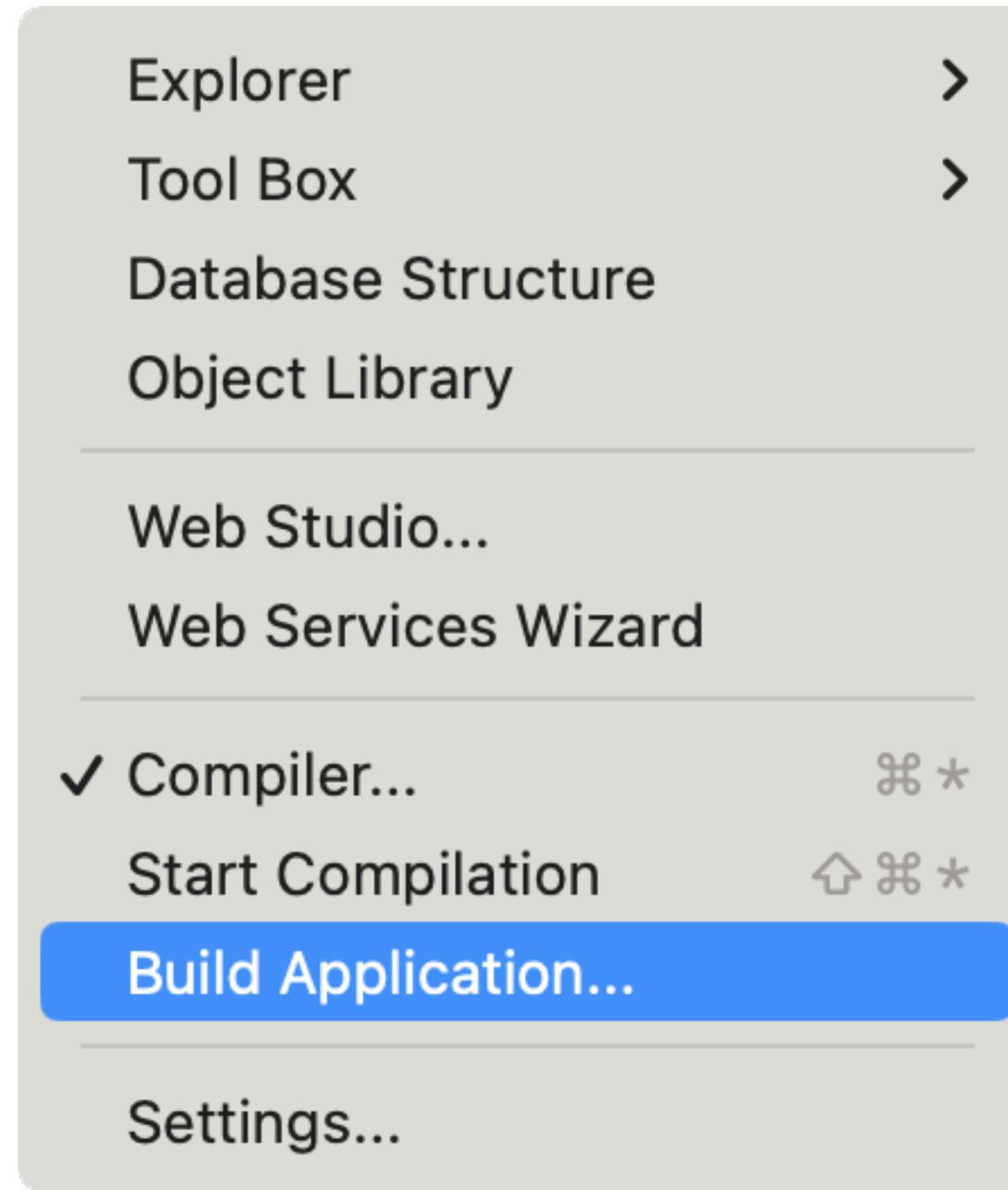
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Basic Build Options

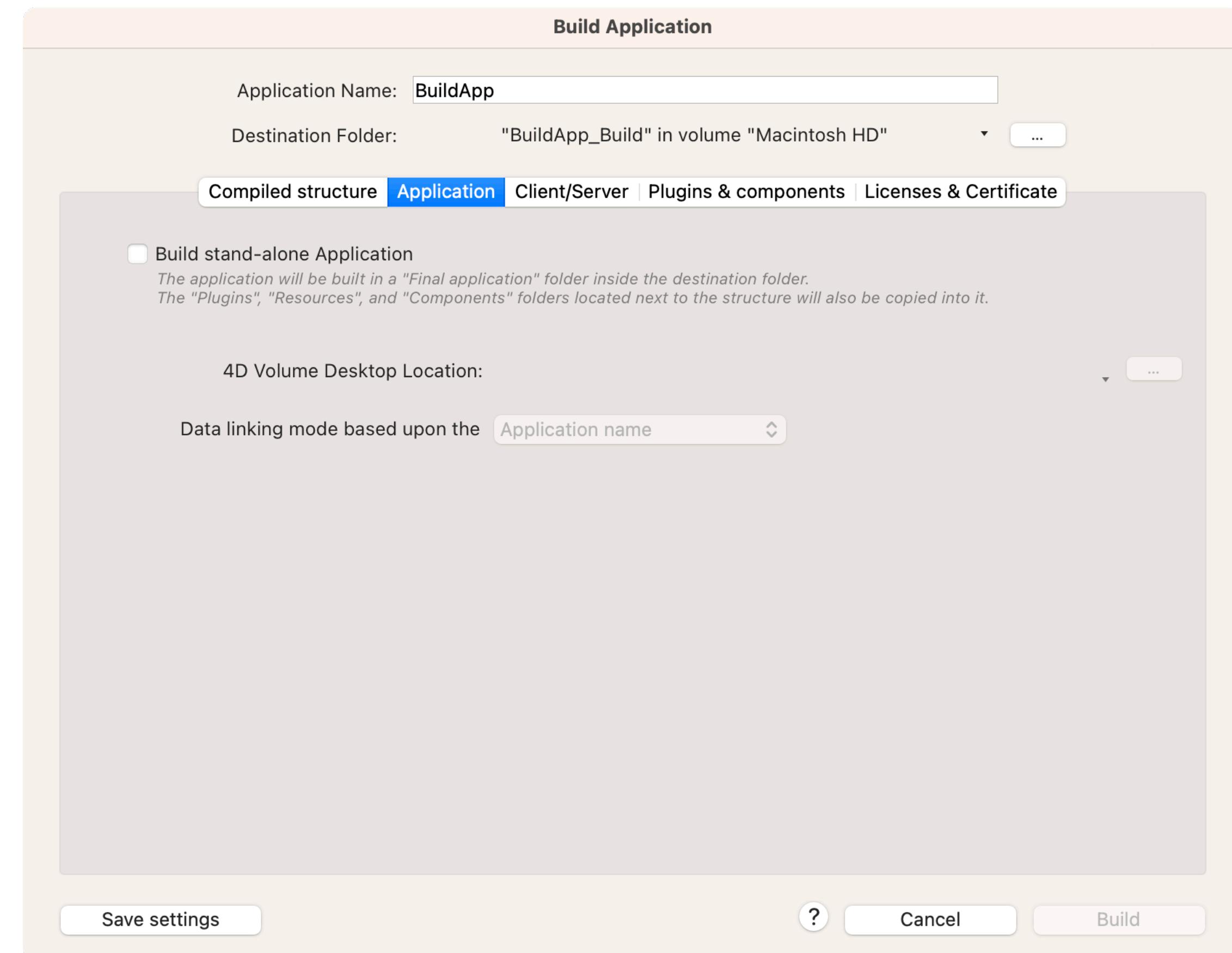
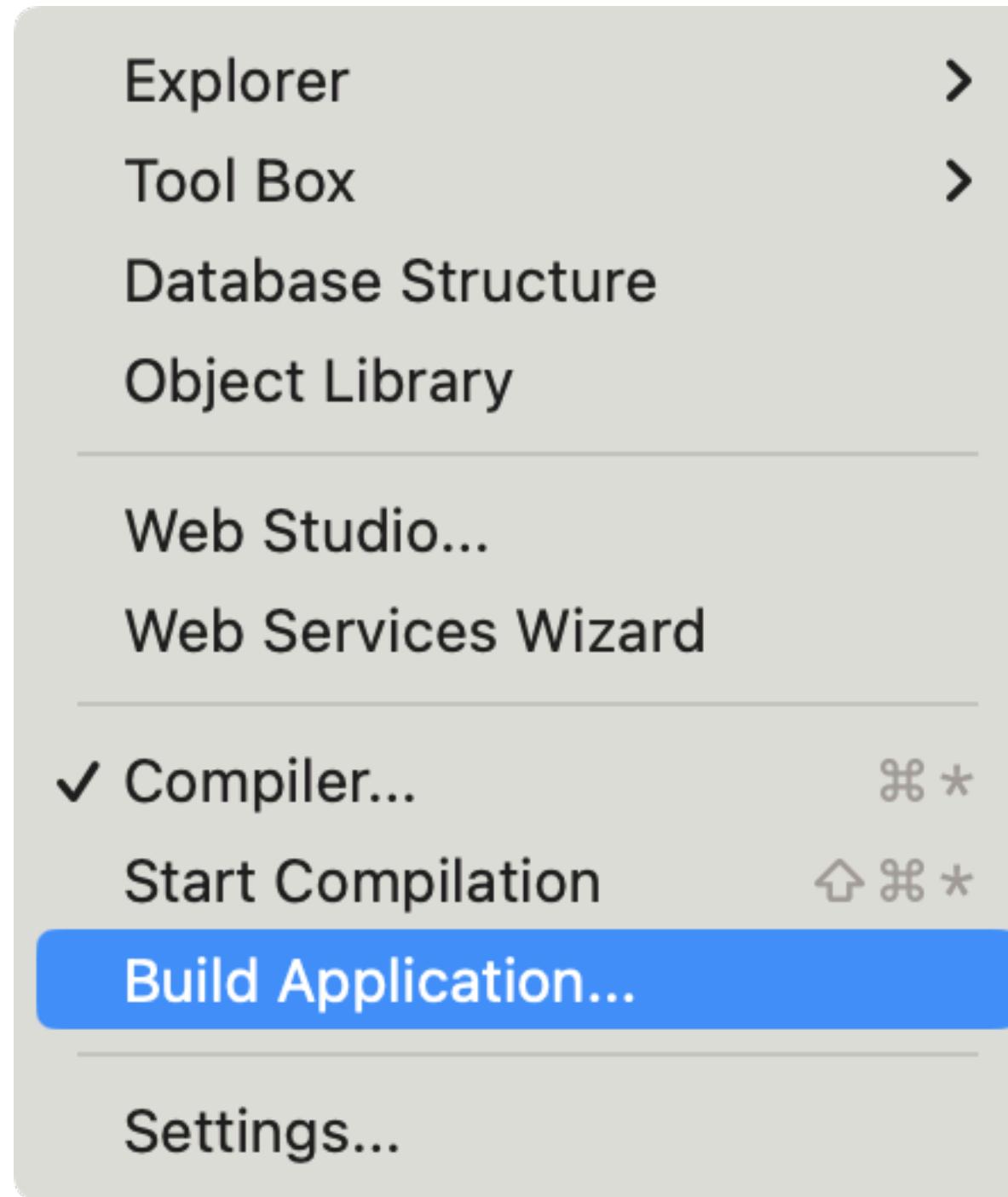


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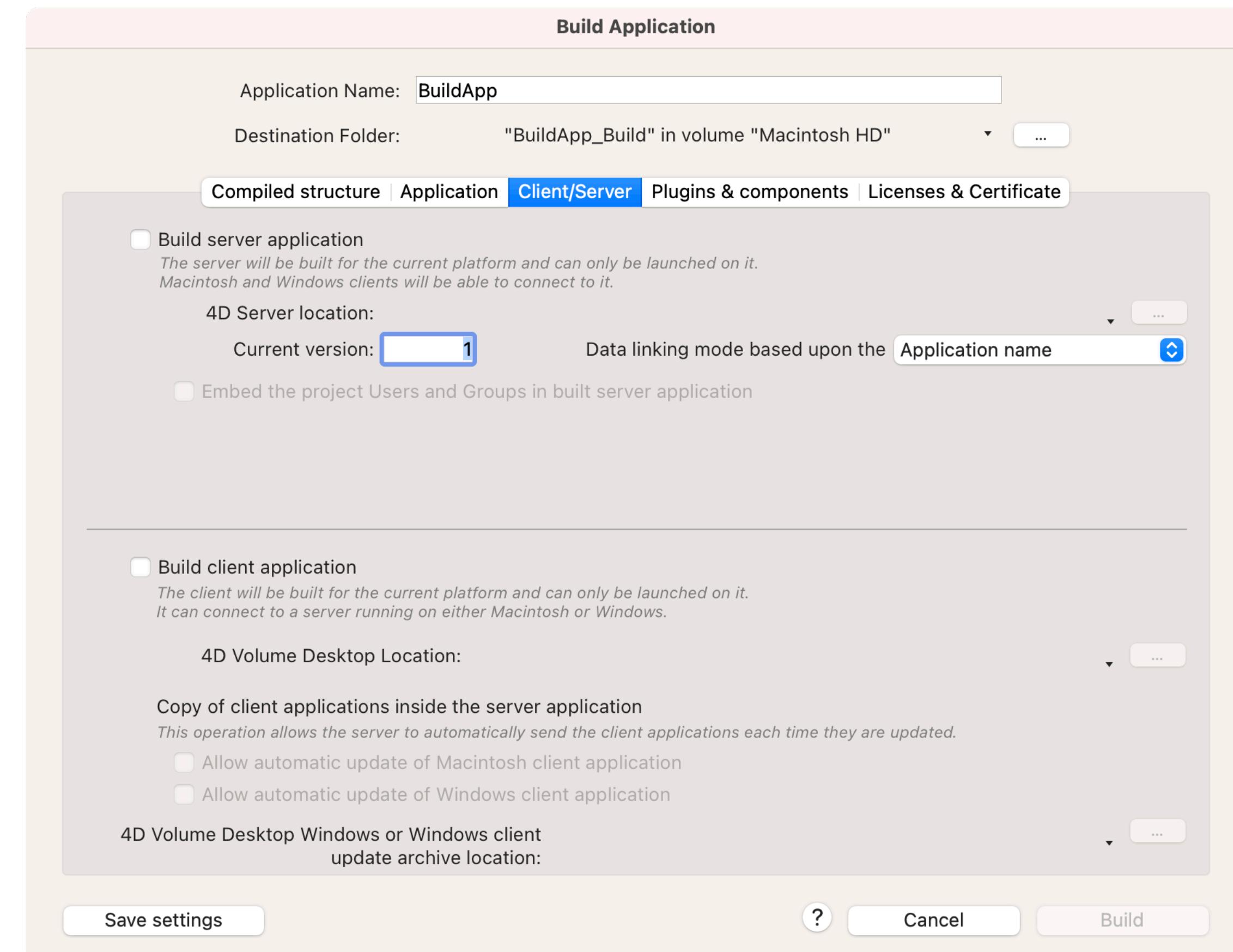
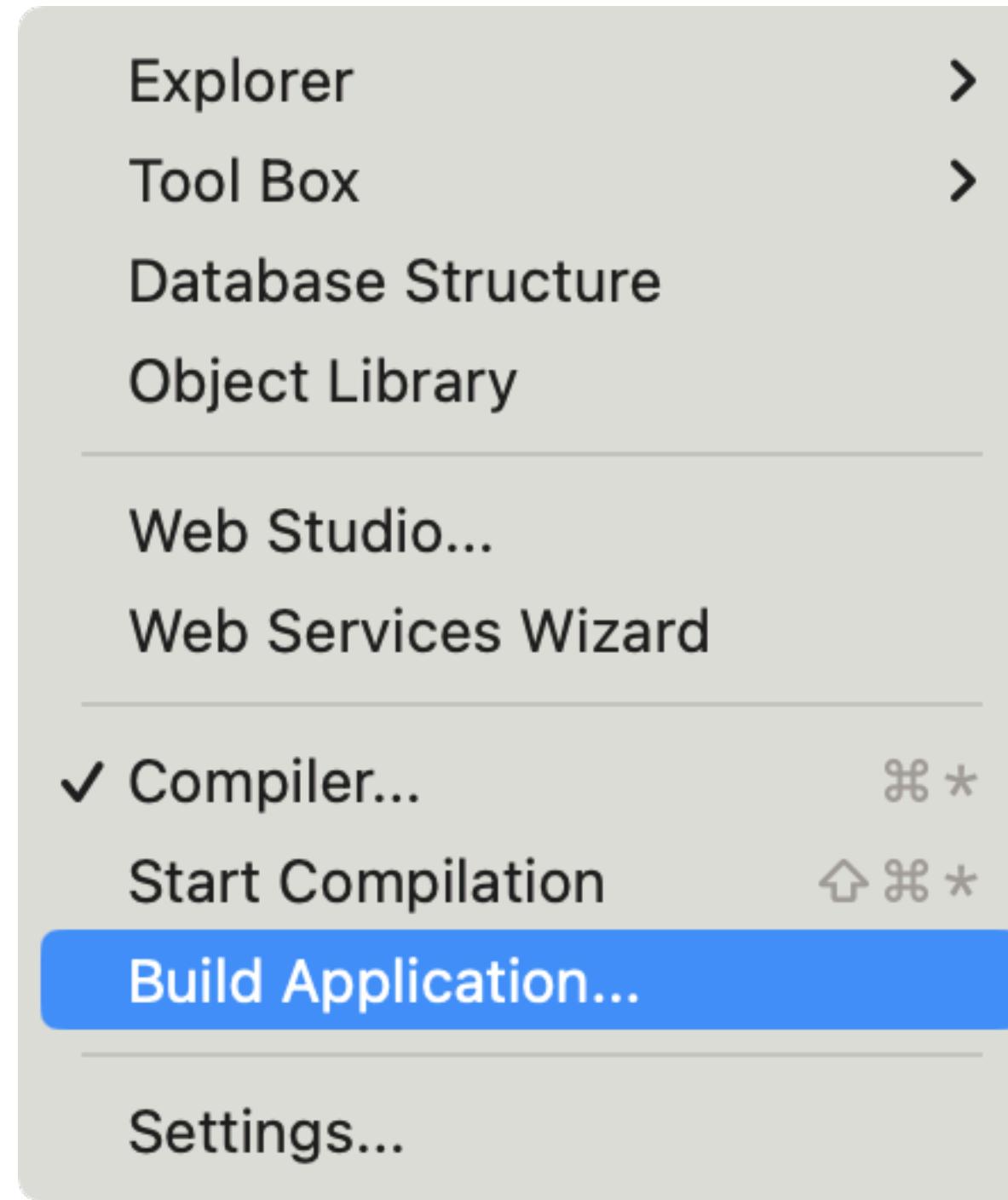
Design ▶ Build Application - Basic Options



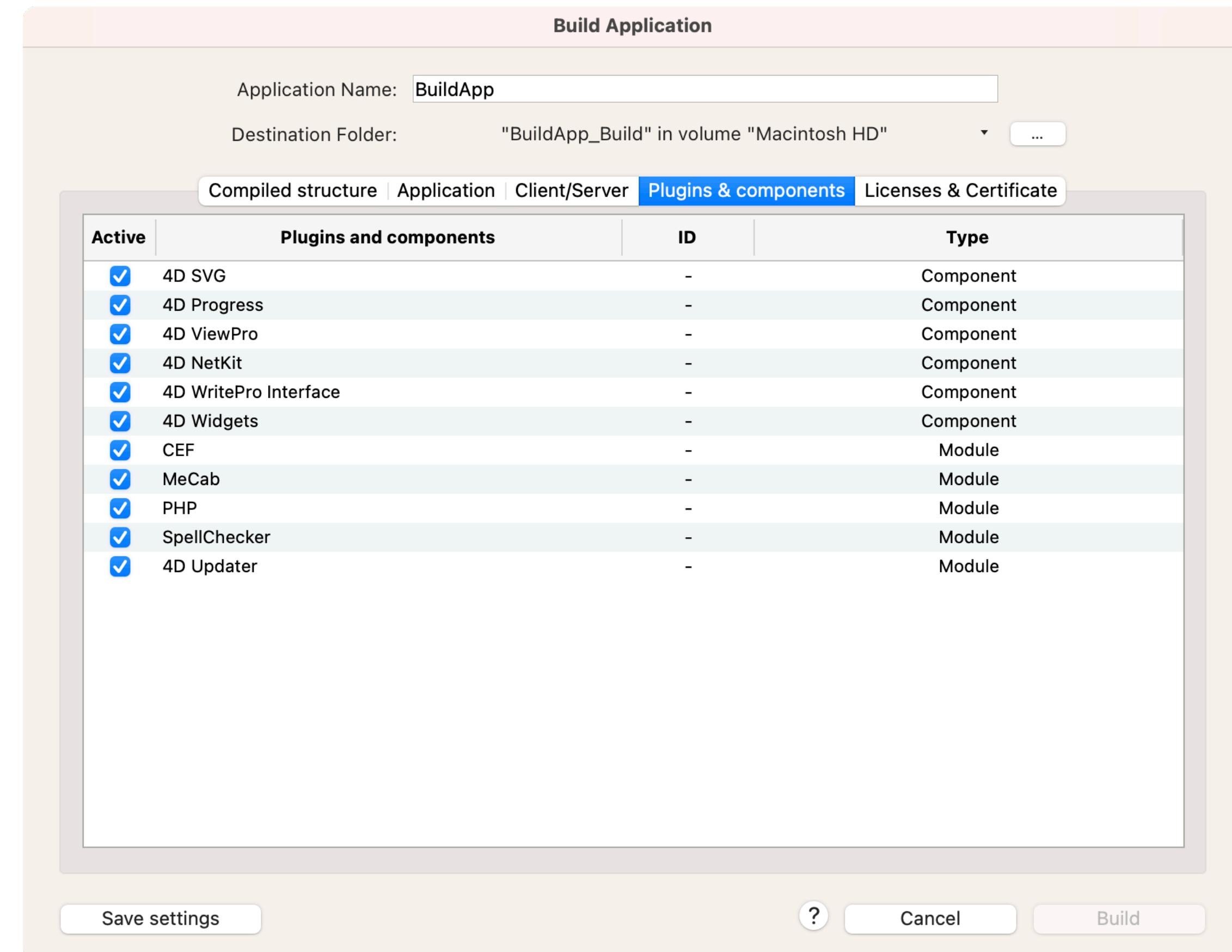
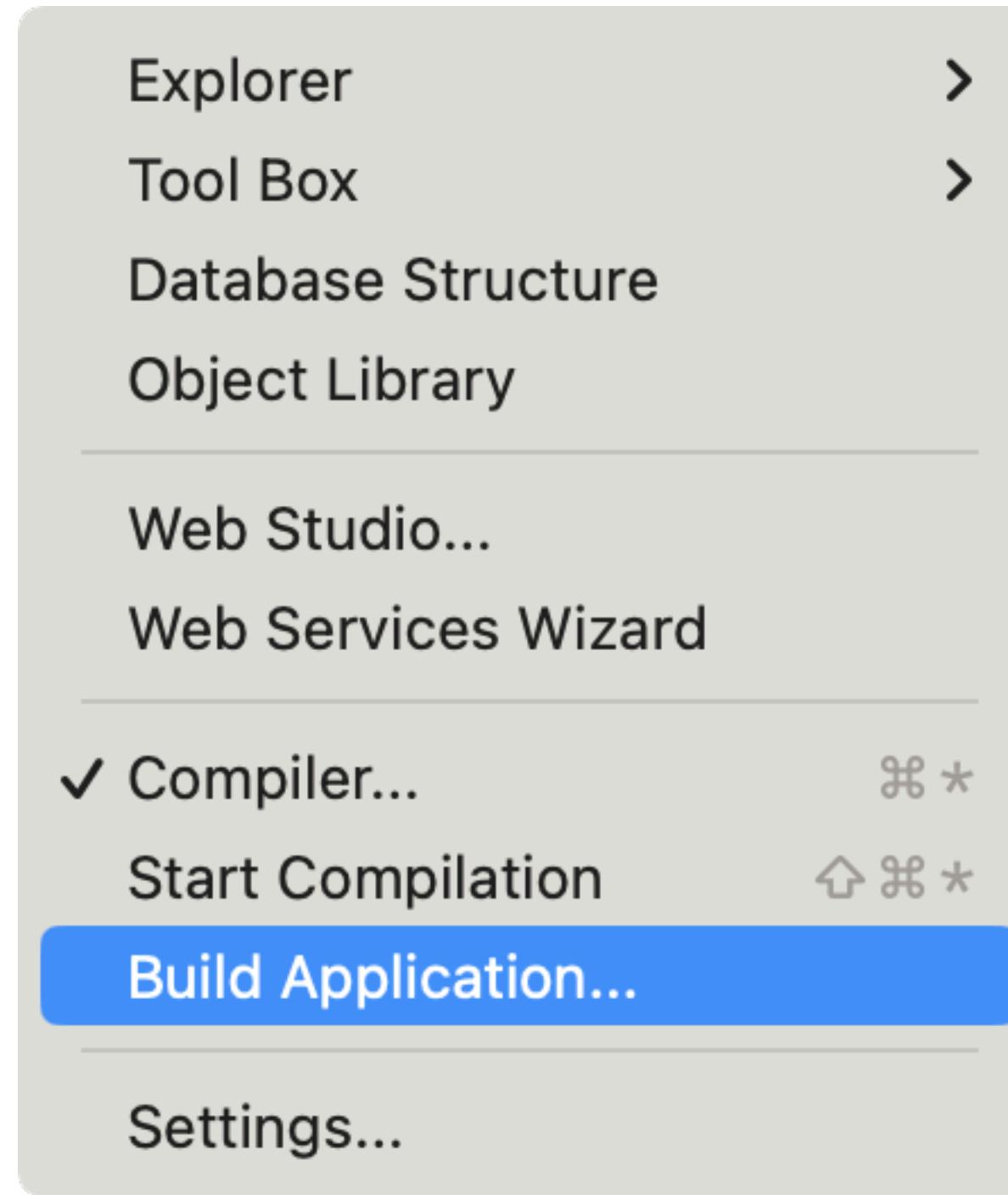
Design ▶ Build Application - Basic Options



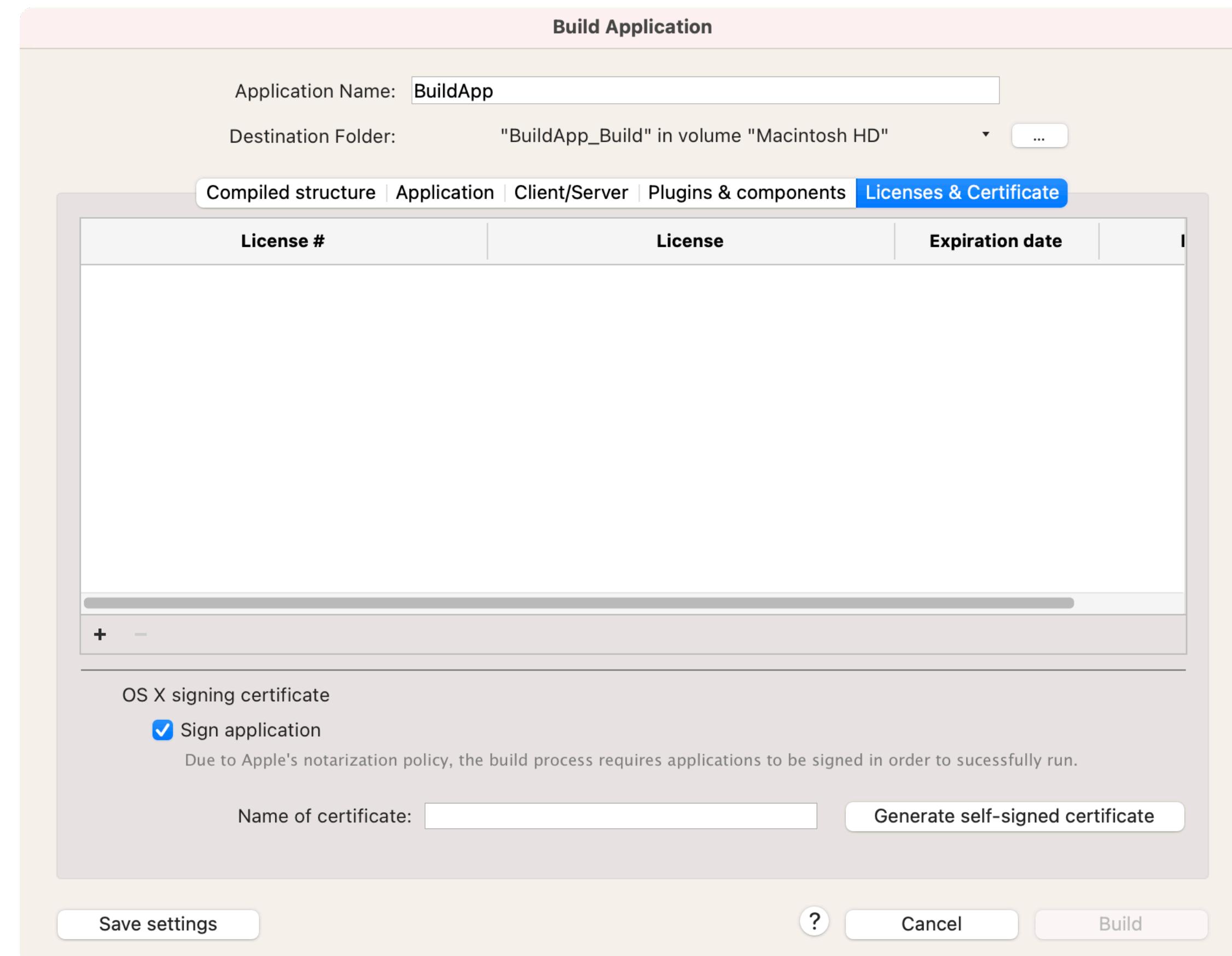
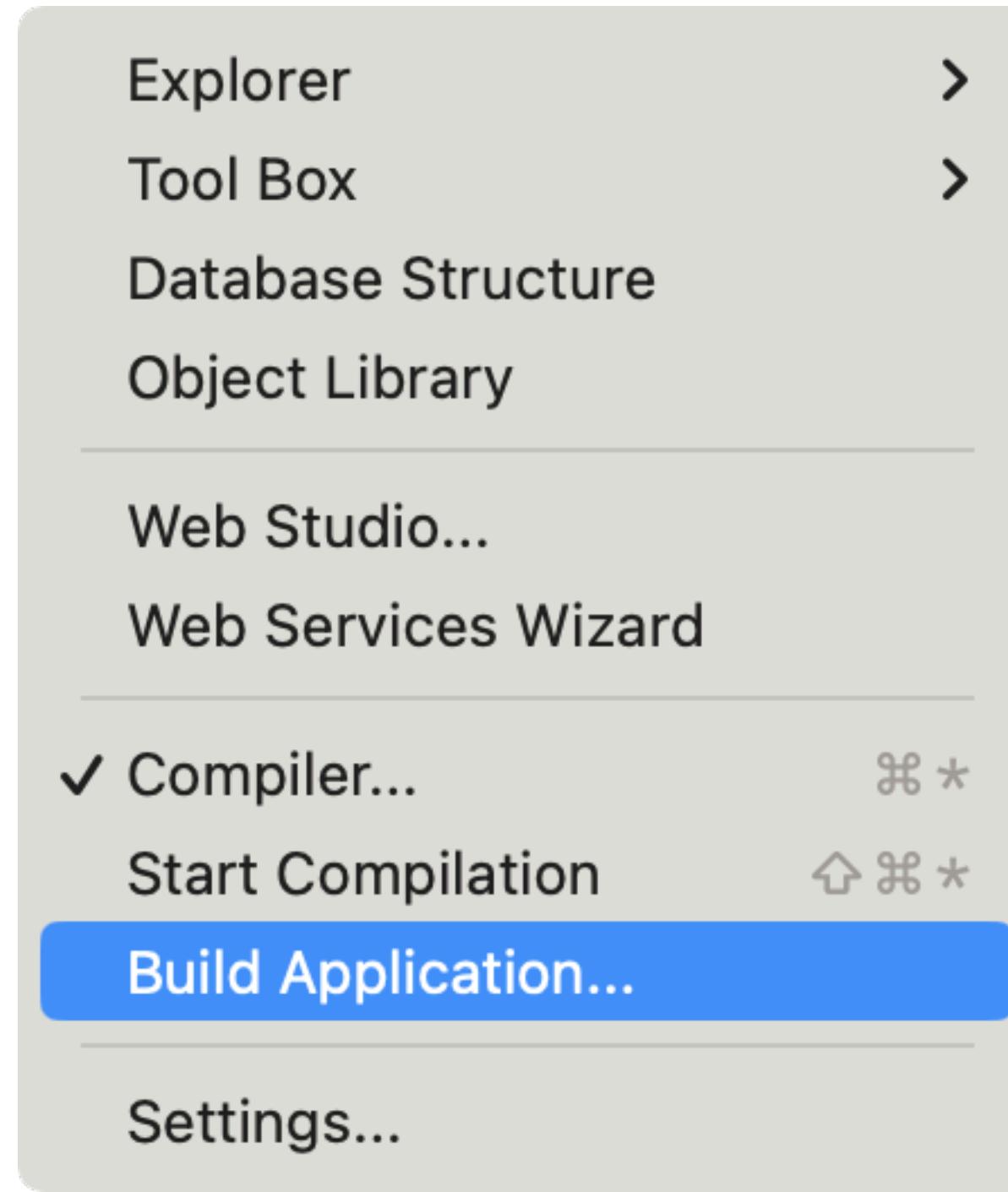
Design ▶ Build Application - Basic Options



Design ▶ Build Application - Basic Options



Design ▶ Build Application - Basic Options



Licenses & certificate 5 of 5

Design ▶ Build Application - Basic Options

BuildApplicationName

BuildCompiled

IncludeAssociatedFolders

BuildComponent

BuildMacDestFolder

BuildWinDestFolder



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Compiled structure 1 of 5

Design ▶ Build Application - Basic Options

BuildApplicationName

BuildMacDestFolder

BuildWinDestFolder

BuildCompiled

RuntimeVLMacFolder

RuntimeVLWinFolder

IncludeAssociatedFolders

BuildComponent

BuildApplicationSerialized

RuntimeVLIncludeIt

LastDataPathLookup

v16

Application 2 of 5



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Design ▶ Build Application - Basic Options

BuildApplicationName

BuildServerApplication

BuildMacDestFolder

BuildWinDestFolder

BuildCompiled

ServerIncludeIt

RuntimeVLMacFolder

RuntimeVLWinFolder

IncludeAssociatedFolders

BuildApplicationSerialized

BuildMacDestFolder

BuildWinDestFolder

BuildComponent

RuntimeVLIIncludeIt

ServerMacFolder

ServerWinFolder

BuildApplicationSerialized

CurrentVers

ClientMacIncludeIt

ClientWinIncludeIt

RuntimeVLIIncludeIt

BuildCSUpgradeable

ClientMacFolderToMac

ClientWinFolderToWin

LastDataPathLookup

LastDataPathLookup

ClientWinFolderToMac

ClientMacFolderToWin

BuildServerApplication

ServerEmbedsProjectDirectoryFile

MacCompiledDatabaseToWinIncludeIt

MacCompiledDatabaseToWin

v16

v16

v20

v20

v20

Client/Server 3 of 5

Design ▶ Build Application - Basic Options

BuildApplicationName

BuildServerApplication

BuildMacDestFolder

BuildWinDestFolder

ArrayExcludedPluginName

BuildCompiled

ServerIncludelit

RuntimeVLMacFolder

RuntimeVLWinFolder

ArrayExcludedPluginID

IncludeAssociatedFolders

BuildApplicationSerialized

BuildMacDestFolder

BuildWinDestFolder

ArrayExcludedModuleName

BuildComponent

RuntimeVLI includelit

ServerMacFolder

ServerWinFolder

ArrayExcludedComponentName

BuildApplicationSerialized

CurrentVers

ClientMacIncludelit

ClientWinIncludelit

RuntimeVLI includelit

BuildCSUpgradeable

ClientMacFolderToMac

ClientWinFolderToWin

LastDataPathLookup

LastDataPathLookup

ClientWinFolderToMac

ClientMacFolderToWin

BuildServerApplication

ServerEmbedsProjectDirectoryFile

MacCompiledDatabaseToWinIncludelit

MacCompiledDatabaseToWin

v20

v16

v16

v20

v20

v20

Plugins & components 4 of 5

Design ▶ Build Application - Basic Options

`BuildApplicationName`

`BuildServerApplication`

`BuildMacDestFolder`

`BuildWinDestFolder`

`ArrayExcludedPluginName`

`BuildCompiled`

`ServerIncludel`

`RuntimeVLMacFolder`

`RuntimeVLWinFolder`

`ArrayExcludedPluginID`

`IncludeAssociatedFolders`

`BuildApplicationSerialized`

`BuildMacDestFolder`

`BuildWinDestFolder`

`ArrayExcludedModuleName`

`BuildComponent`

`RuntimeVLI includel`

`ServerMacFolder`

`ServerWinFolder`

v20

`ArrayExcludedComponentName`

`BuildApplicationSerialized`

`CurrentVers`

`ClientMacIncludel`

`ClientWinIncludel`

v14

`MacSignature`

`RuntimeVLI includel`

`BuildCSUpgradeable`

`ClientMacFolderToMac`

`ClientWinFolderToWin`

v14

`MacCertificate`

`LastDataPathLookup`

`LastDataPathLookup`

`ClientWinFolderToMac`

`ClientMacFolderToWin`

v19

`AdHocSign`

`BuildServerApplication`

`ServerEmbedsProjectDirectoryFile`

`MacCompiledDatabaseToWinIncludel`

`ArrayLicenseMac`

`ArrayLicenseWin`

`MacCompiledDatabaseToWin`

Licenses & certificate 5 of 5



Design ▶ Build Application - Basic Options

- compiled project, component
- desktop, client, server
- cross-platform, client/server auto-update
- plugins, components, modules, licenses
- codesign



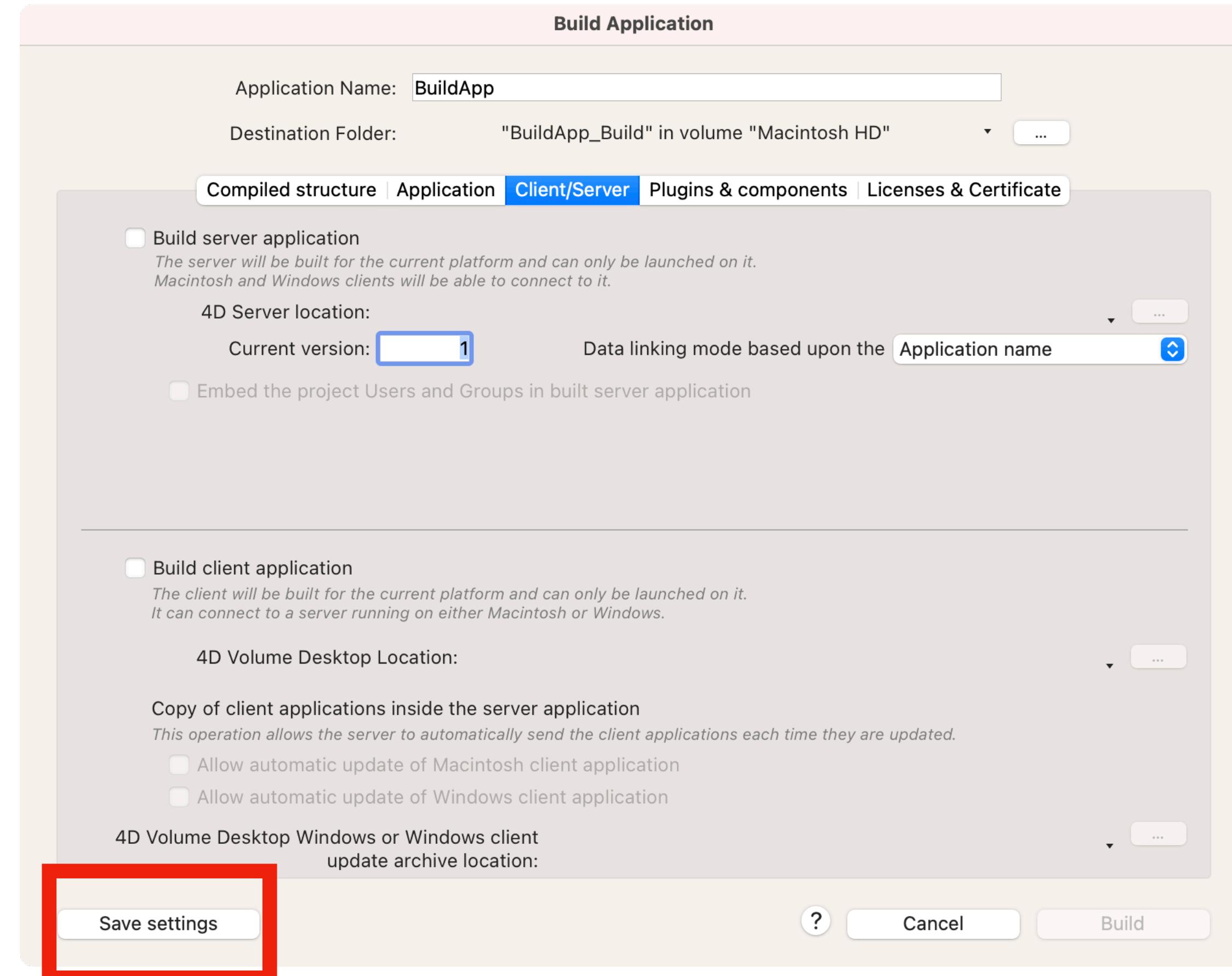
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Advanced Build Options



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Design > Build Application - Advanced Options



save settings

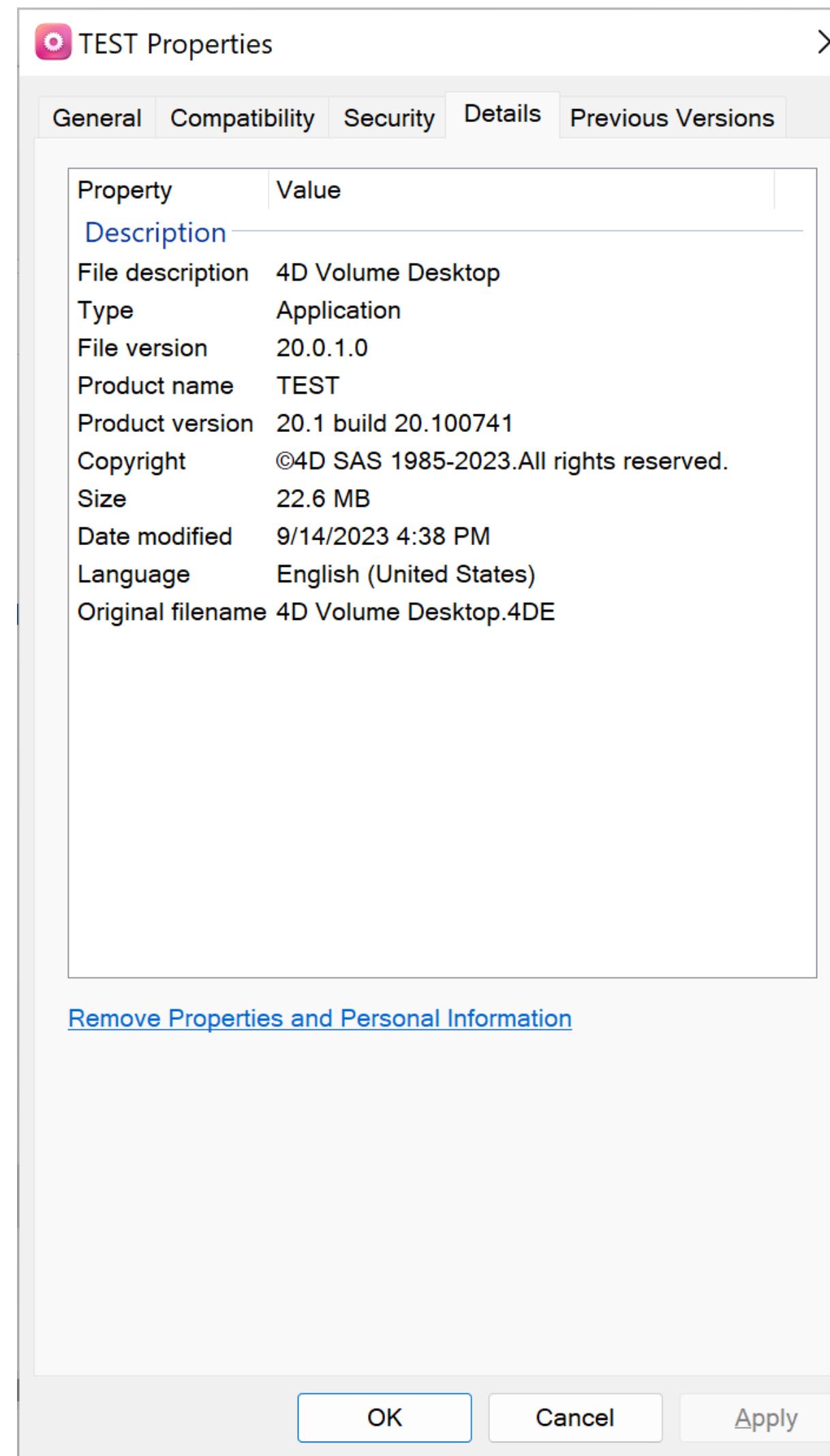
Project

Settings

BuildApp.4DSettings
(XML document)

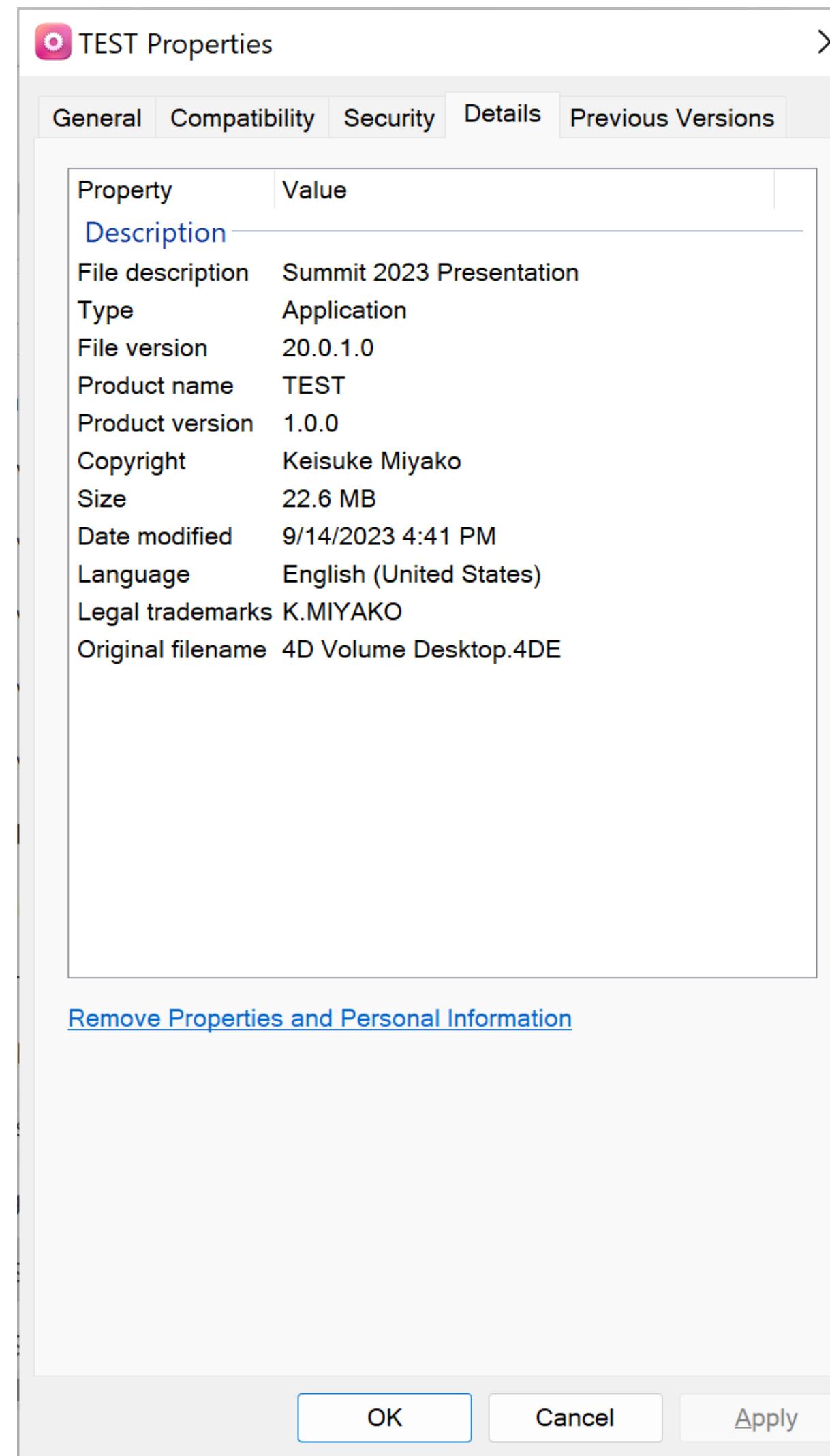


Design ▶ Build Application - Advanced Options



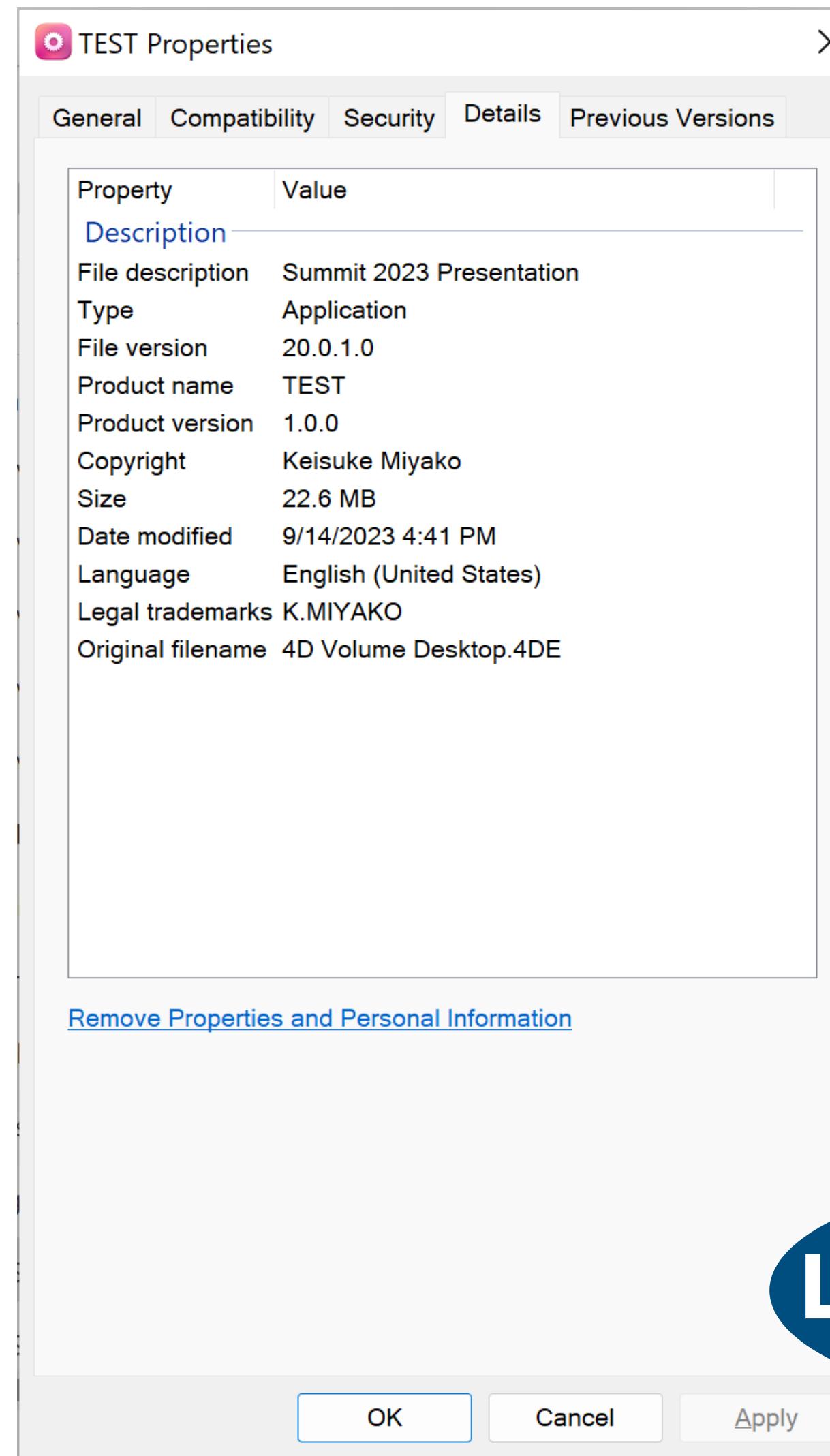
File description **4D Volume Desktop**
Type **Application**
File version **20.0.1.0**
Product name **TEST**
Product version **20.1 build 20.100741**
Copyright **©4D SAS 1985-2023. All rights reserved.**
Size **22.6 MB**
Date modified **9/14/2023 4:38 PM**
Language **English (United States)**
Original filename **4D Volume Desktop.4DE**

Design ▶ Build Application - Advanced Options



File description **Summit 2023 Presentation**
Type **Application**
File version **20.0.1.0**
Product name **TEST**
Product version **1.0.0**
Copyright **Keisuke Miyako**
Size **22.6 MB**
Date modified **9/14/2023 4:41 PM**
Language **English (United States)**
Legal trademarks **K.MIYAKO**
Original filename **4D Volume Desktop.4DE**

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File description

Summit 2023 Presentation

Type

Application

File version

20.0.1.0

Product name

TEST

Product version

1.0.0

Copyright

Keisuke Miyako

Size

22.6 MB

Date modified

9/14/2023 4:41 PM

Language

English (United States)

Legal trademarks

K.MIYAKO

Original filename

4D Volume Desktop.4DE

LegalTrademark

setApplInfo

FileDescription

Version

Copyright



Design ▶ Build Application - Advanced Options

DataFilePath

IPAddress

PortNumber

v18 DatabaseToEmbedInClientxxxFolder

v18 ClientWinSingleInstance

v20 ShareLocalResourcesOnWindowsClient

v20 ClientUserPreferencesFolderPath

HardLink

RangeVersMin

RangeVersMax

IsOEM

v14

StartElevated

v16

ServerSelectionAllowed

v19

ServerStructureFolderName

v19

ClientServerSystemFolderName

v19

PackProject

v20

ServerDataCollection

v20

HideDataExplorerMenuItem

v20

HideRuntimeExplorerMenuItem

v20

ServerEmbedsProjectDirectoryFile

v20

UseStandardZipFormat

v20

HideAdministrationMenuItem

ServerIconMacPath

ServerIconWinPath

ClientMacIconForMacPath

ClientWinIconForWinPath

ClientWinIconForMacPath

ClientMacIconForWinPath

RuntimeVLIconMacPath

RuntimeVLIconWinPath



Branding

icons

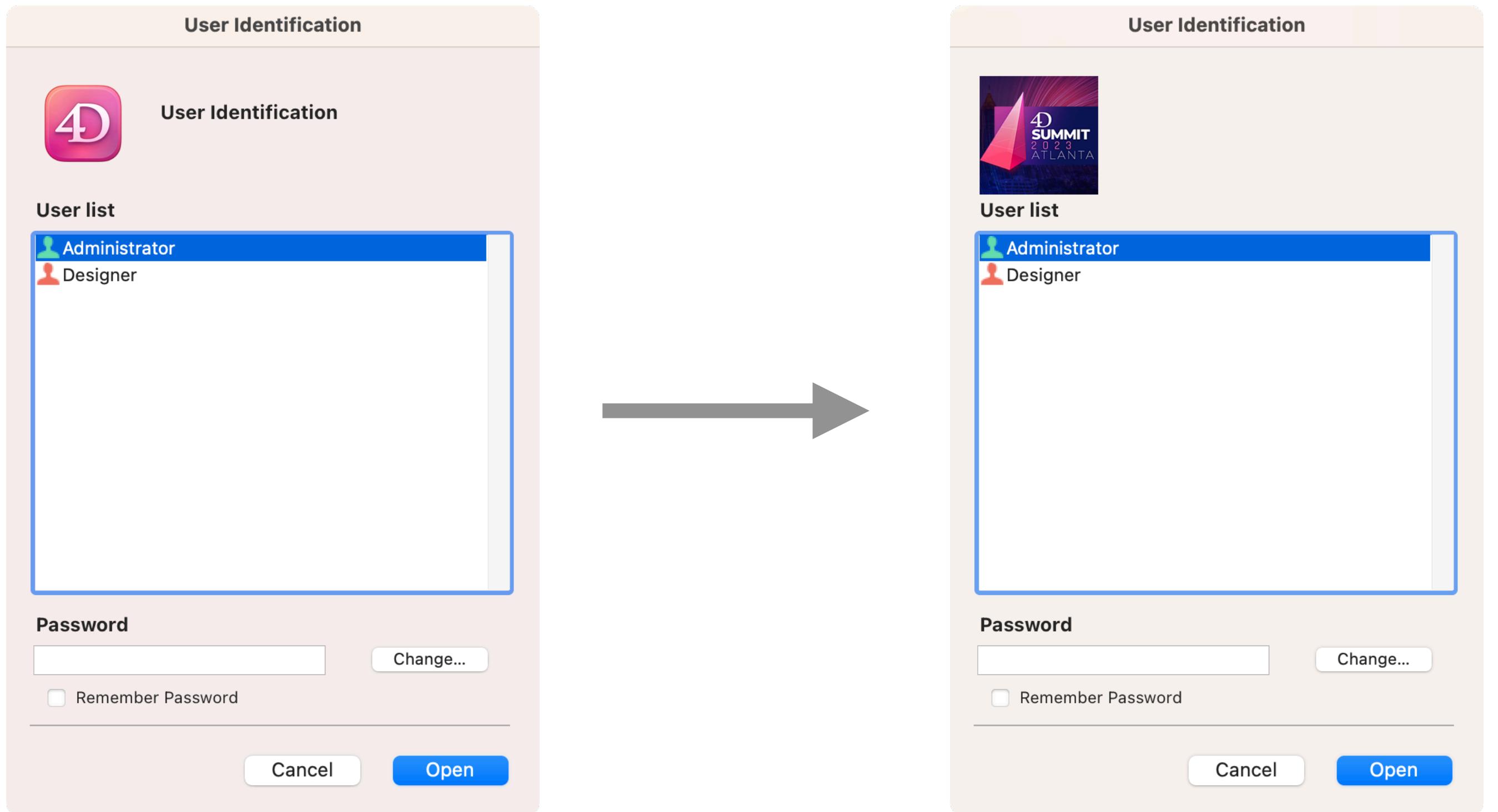
Icons



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Login Image

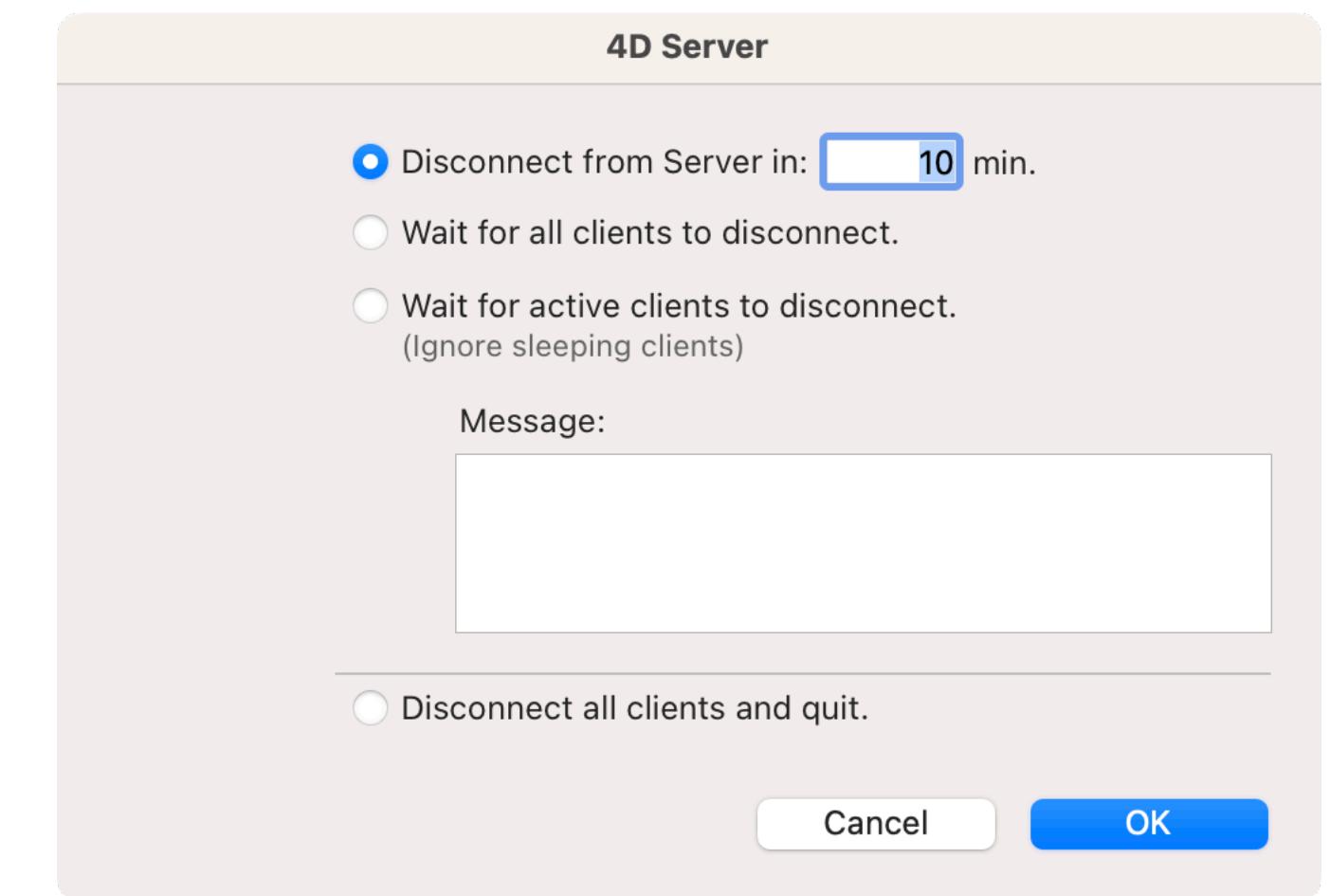
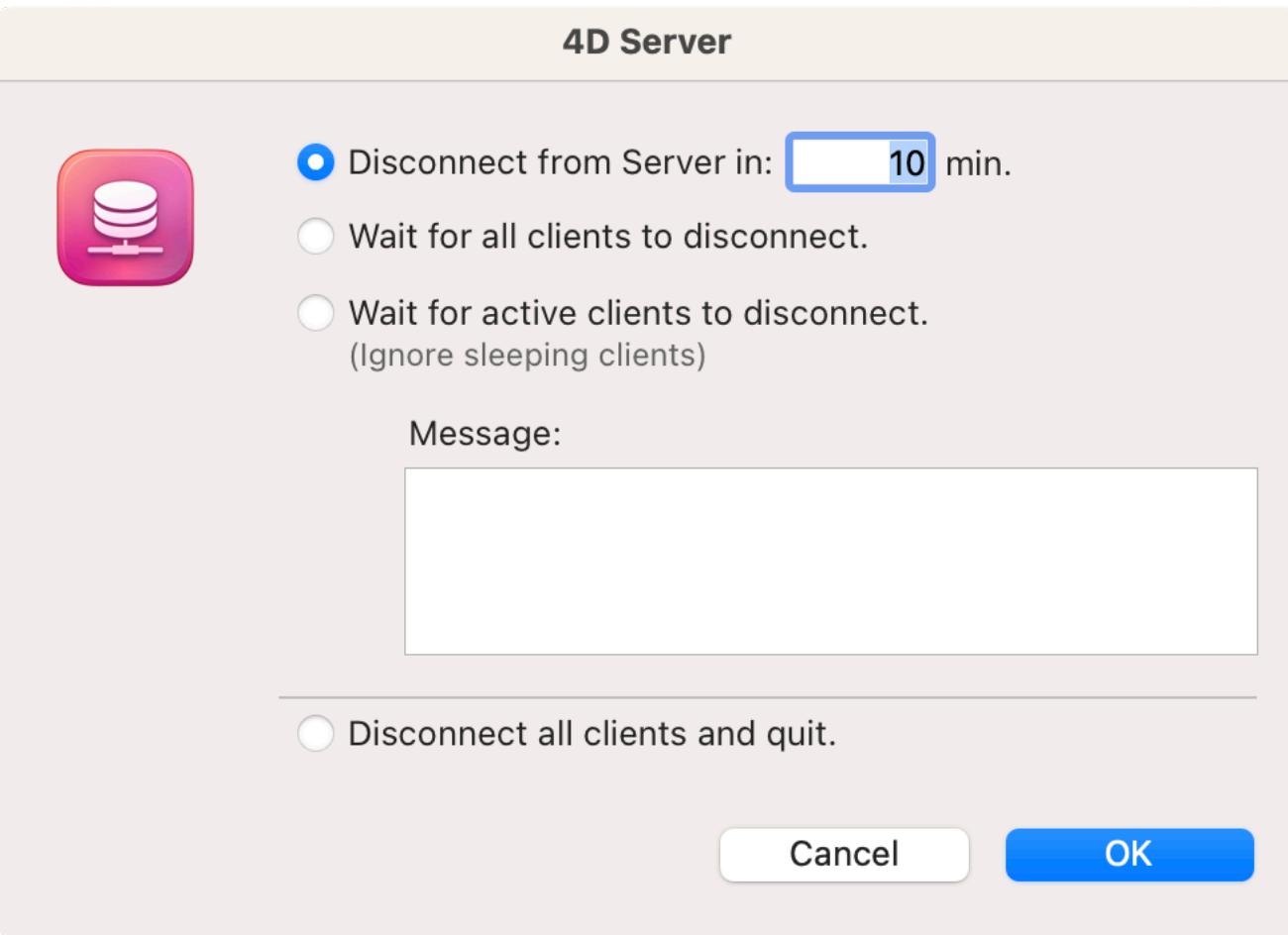
- **Name:** LoginImage
- **Format:** PNG
- **Location:** /RESOURCES/
- **Size:** automatically scaled



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Login Image

- **Name:** LoginImage
- **Format:** PNG
- **Location:** /RESOURCES/
- **Size:** automatically scaled



Application Icon - macOS

- **Name:** PROJECT
- **Format:** ICNS
- **Location:** /PACKAGE/



PACKAGE.4dbase



Project



PROJECT.icns



PROJECT.4DProject



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Application Icon - macOS

- **Name:** PROJECT
- **Format:** ICNS
- **Location:** /PACKAGE/
- **Size:** 1024 and smaller variations
- **Shape:** Square with rounded corners 1024×1024, r=226



@1x	@2x
512×512	1024×1024
256×256	512×512
128×128	256×256
32×32	64×64
16×16	32×32



<https://developer.apple.com/design/human-interface-guidelines/app-icons>

Application Icon - Windows

- **Name:** PROJECT
- **Format:** ICO
- **Location:** /PACKAGE/
- **Size:** 256 and smaller variations
- **Shape:** Visually balanced, few shapes/corners



	system tray	task bar	start pin
100%	16	24	32
125%	20	30	40
150%	24	36	48
200%	32	48	64
250%	40	60	80
300%	48	72	96
400%	64	96	256



Demonstration

ICNS, ICO

OEM



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IsOEM

- Original Equipment Manufacturer

- embedded, à la carte
- no sponsor message

code	product
4UOE	Desktop
4UOE	OEM Desktop
4DDP	Developer
4DOE	OEM Developer

code	product
4DTD	Team Developer
4DOT	OEM Team Developer
4USE	Server
4UOS	OEM Server
4DOM	OEM XML Keys



Setup

macOS, Windows

v18

ClientWinSingleInstance



4D CLIENT DATABASE FOLDER



Caches
AppData/Local



{APP} Client_789



{PROJECT}_{ADDR}_{PORT}_364



{CSSFN}_935

ServerStructureFolderName



Application Support
AppData/Roaming



{APP}



4D



{APP}

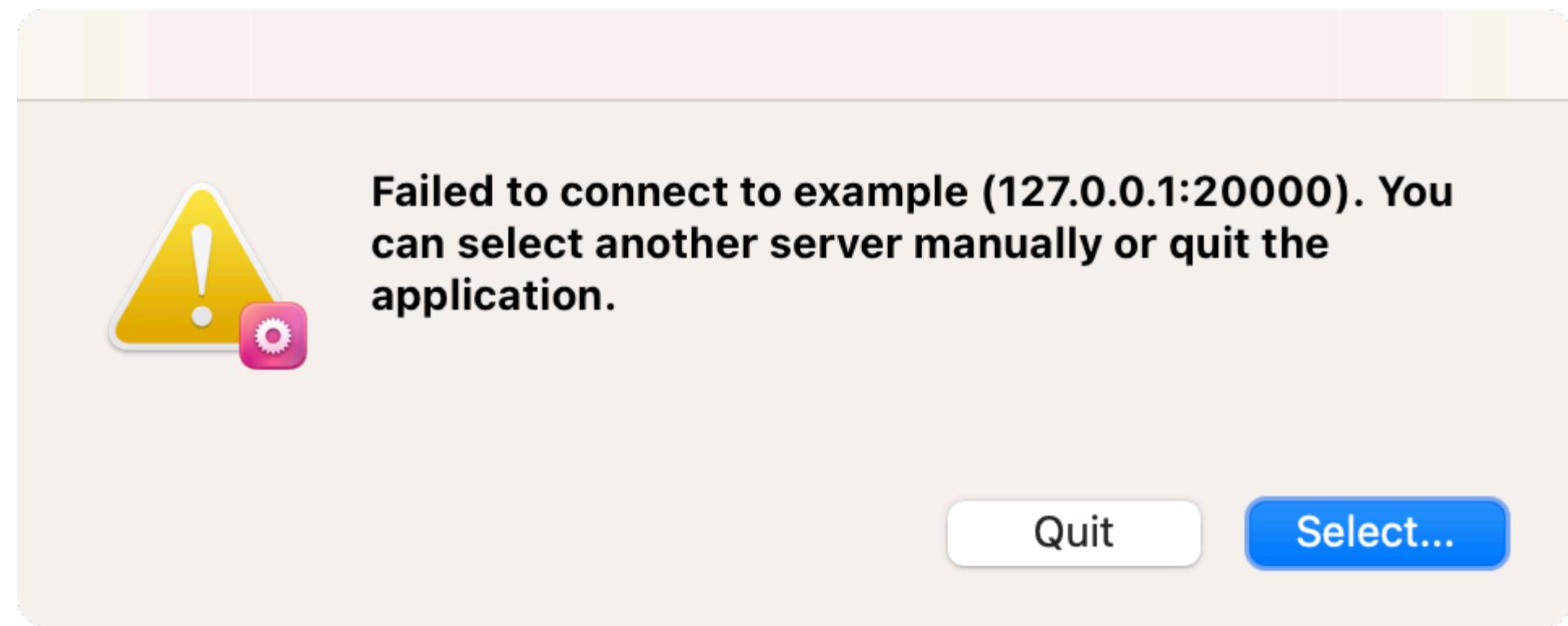


{SSFN}

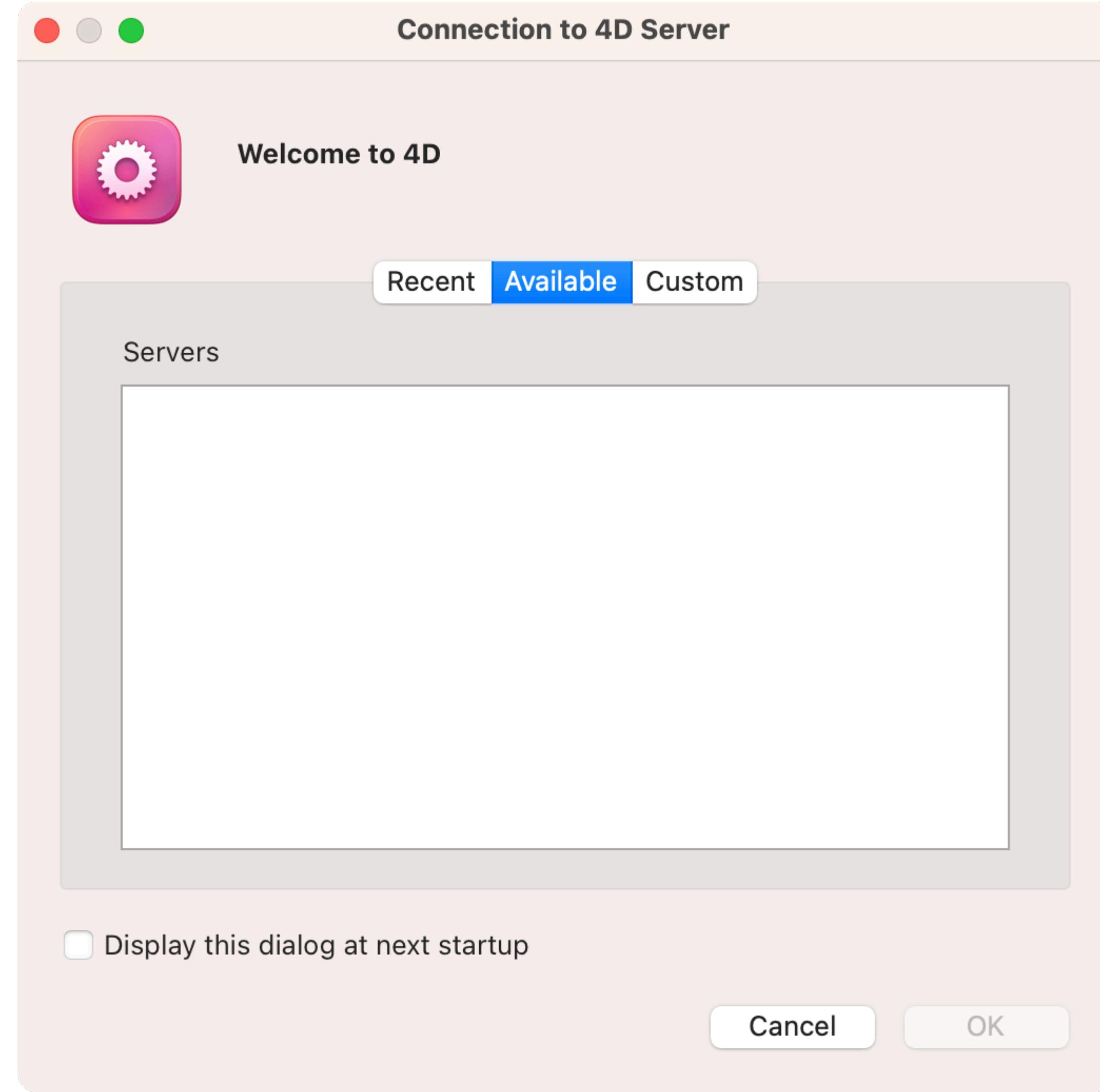
Security

access control

v16 ServerSelectionAllowed



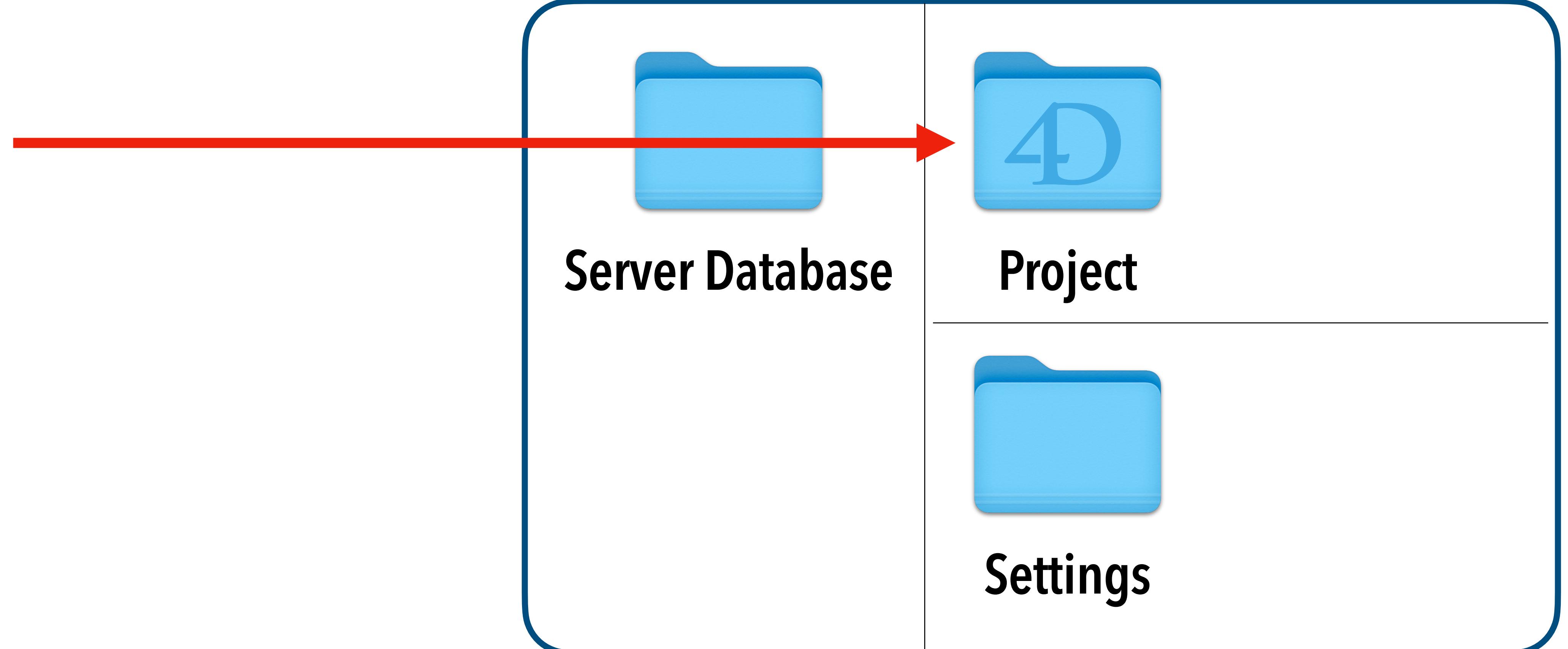
v16 ServerSelectionAllowed



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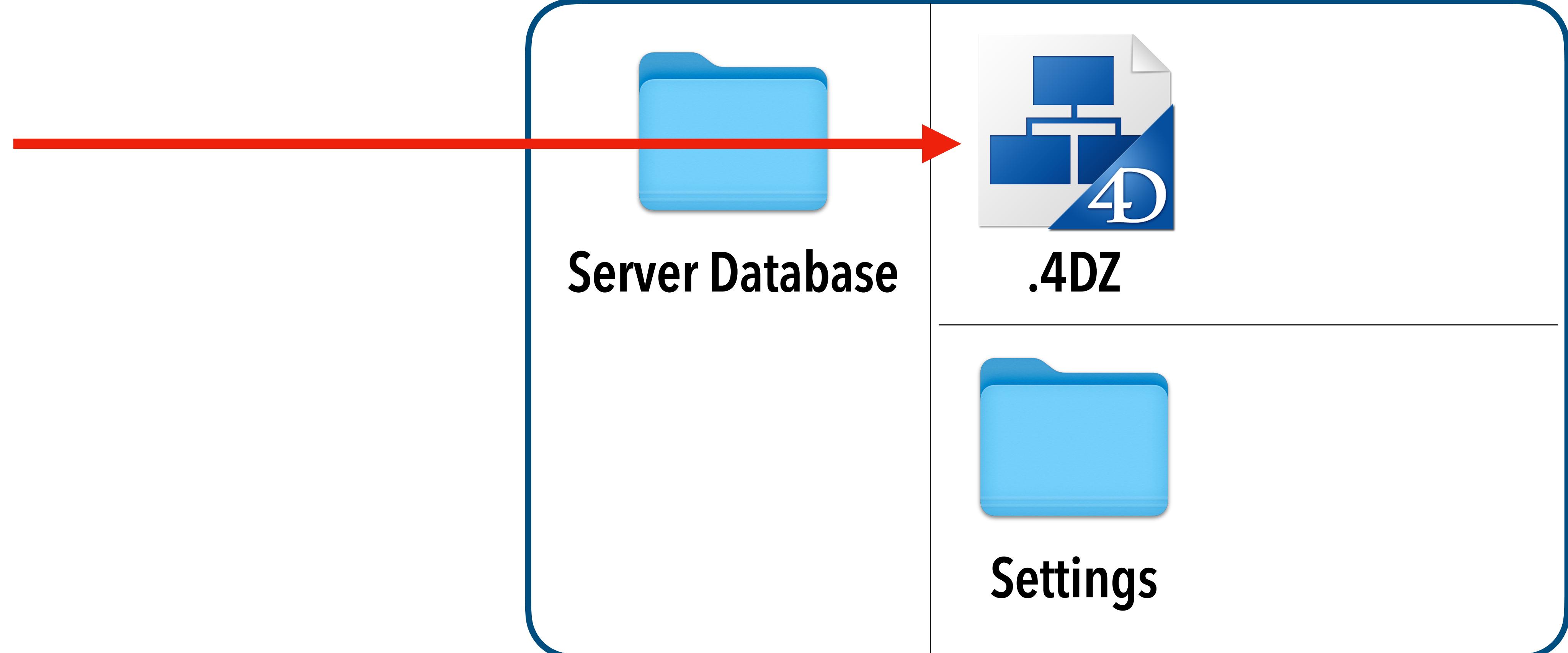


Project





Project



v19

UseStandardZipFormat



.4DZ



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v19

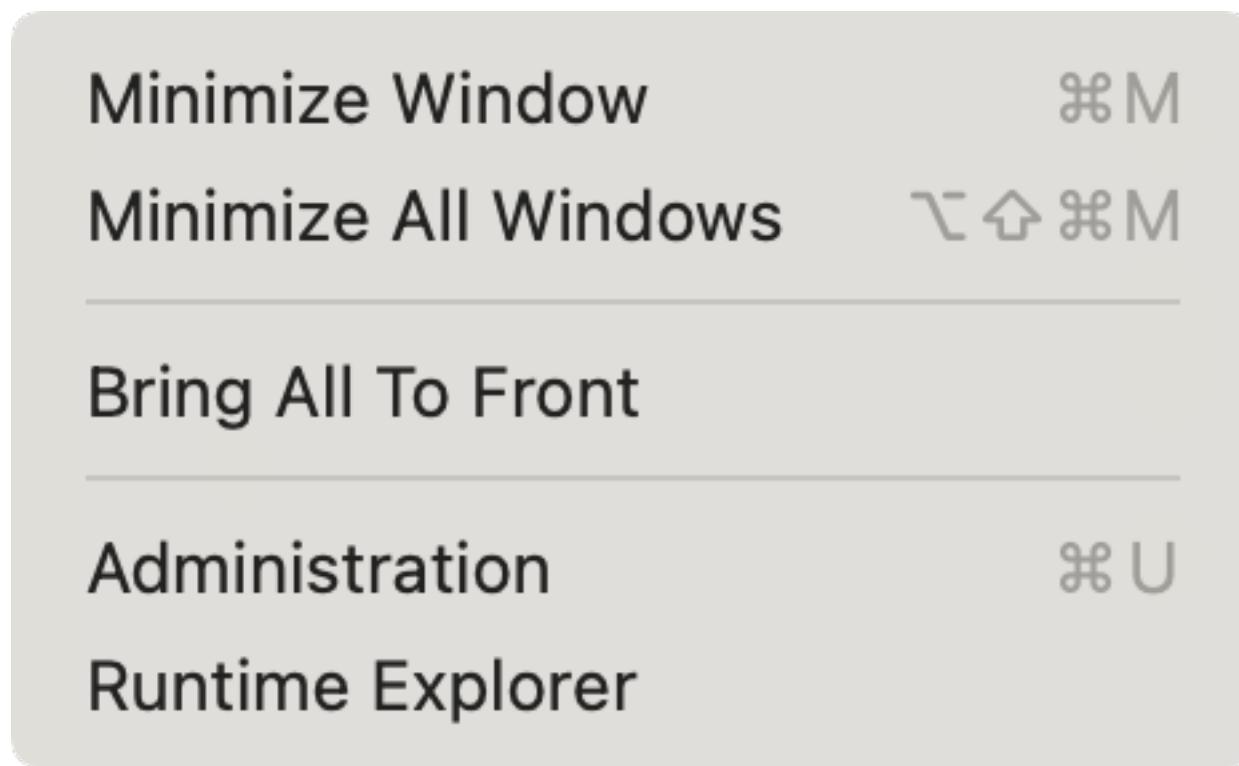
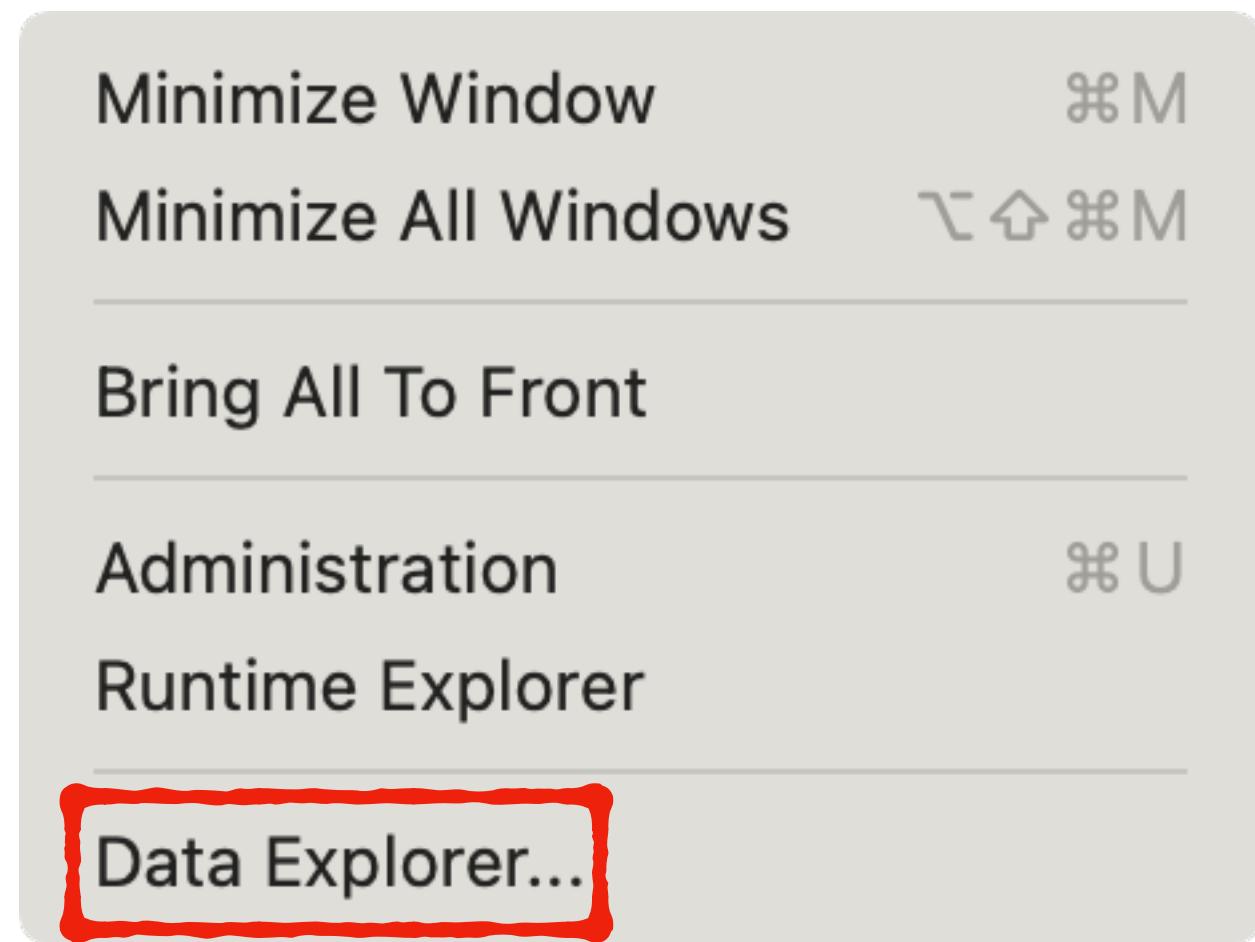
UseStandardzipFormat



Project

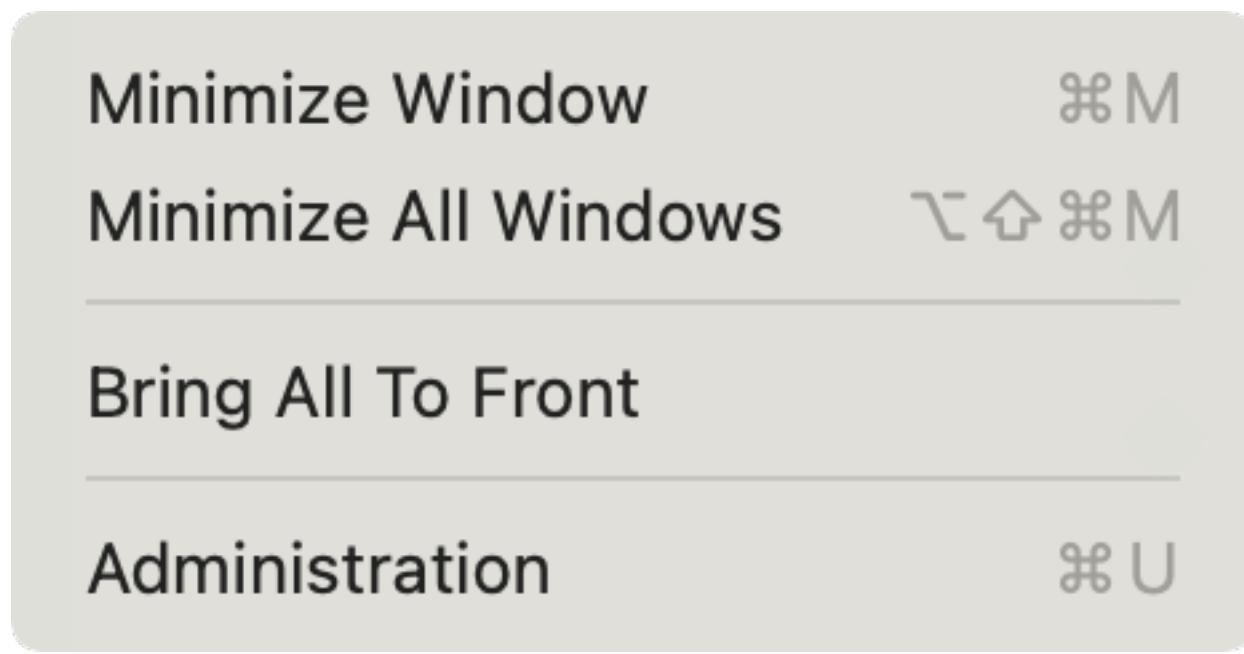
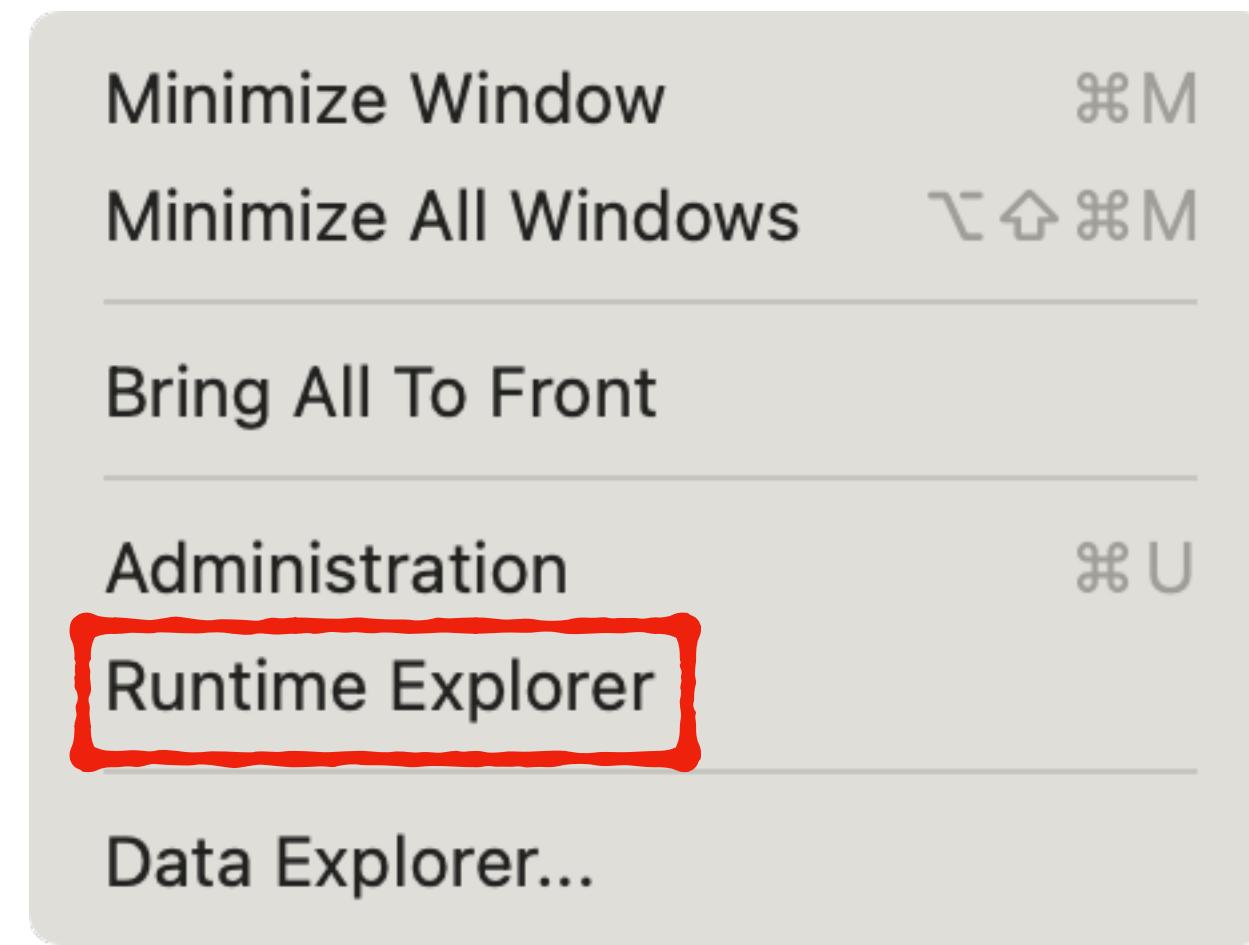
v20

HideDataExplorerMenuItem



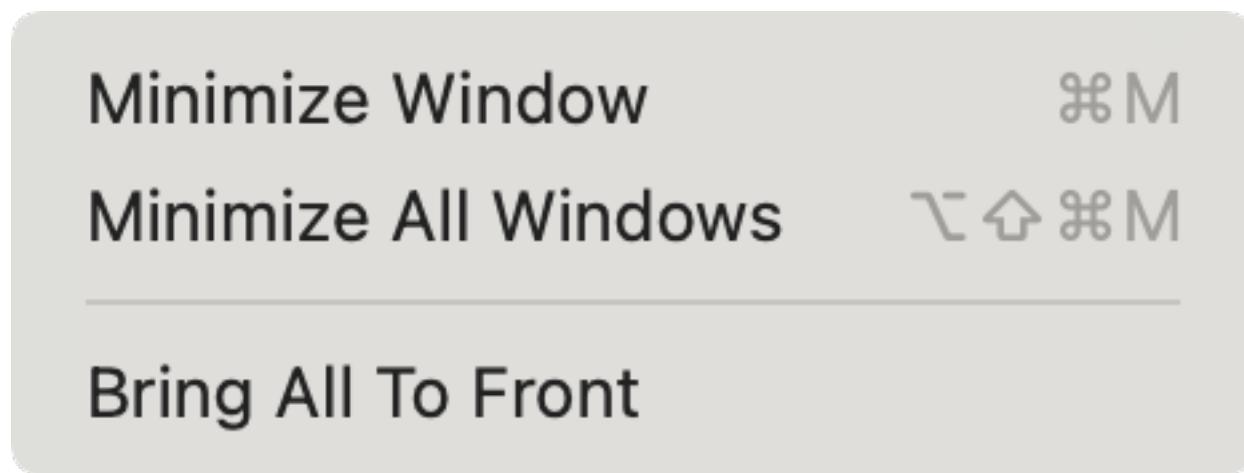
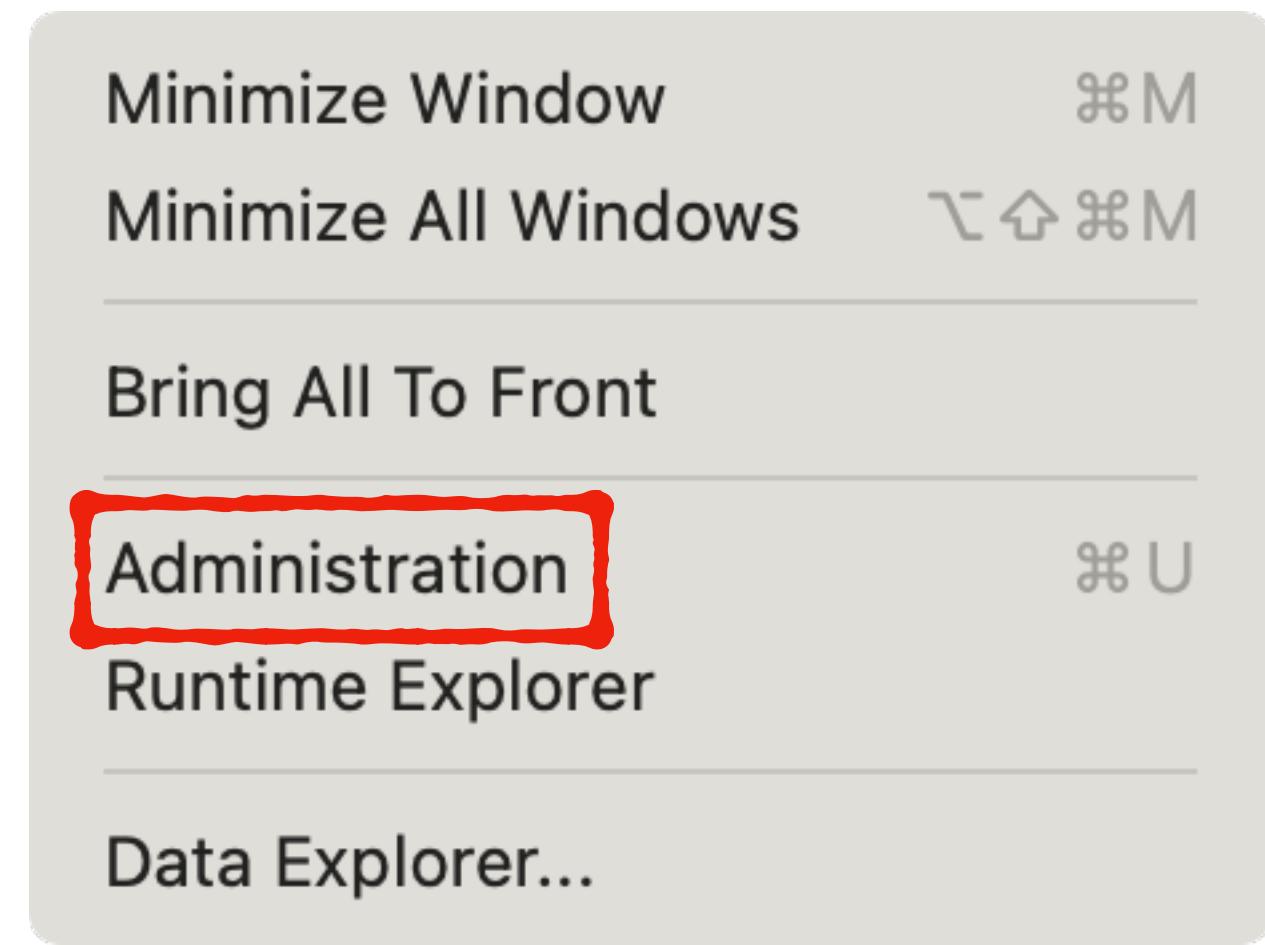
v20

HideRuntimeExplorerMenuItem



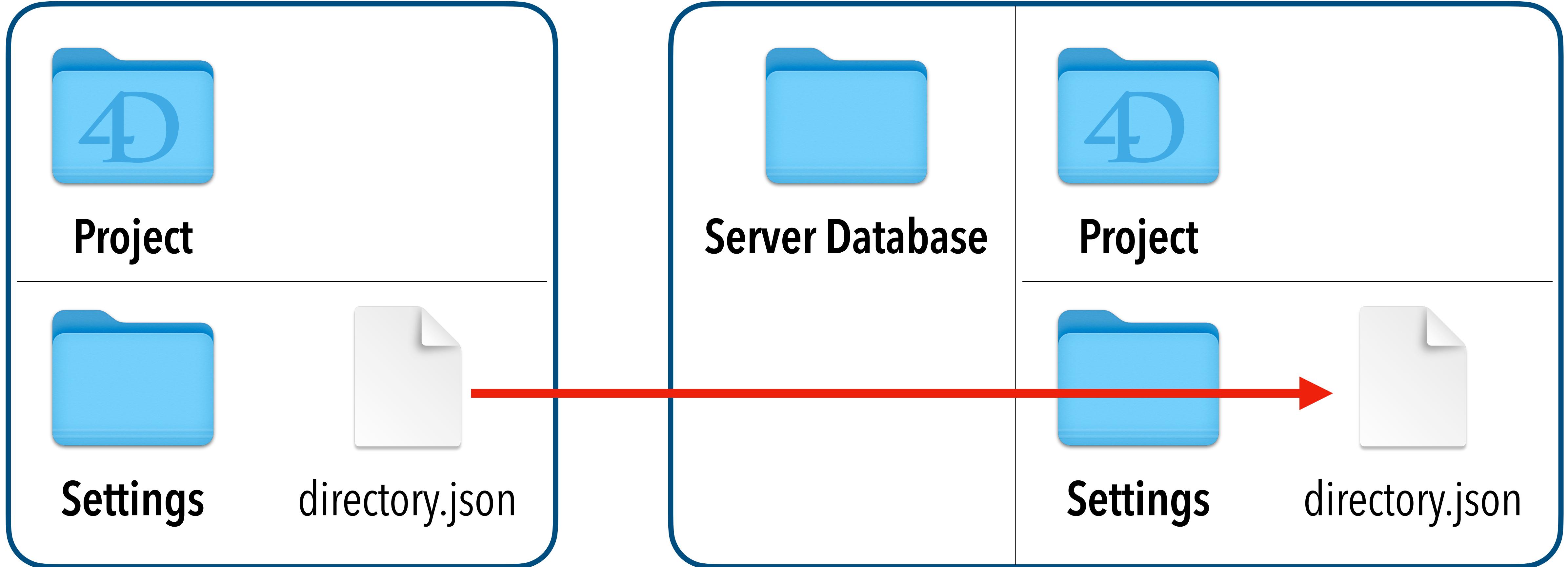
v20

HideAdministrationMenuItem



v20

Server Embeds Project Directory File



Headless Utility



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BUILD APPLICATION

	BUILD APPLICATION	Build4D	build-application
--headless	NO	YES	YES
.4DSettings	YES	NO	YES



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Question Time

build application

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