



# VIRTUAL Developer Bench

2021



## Sabre Red 360 SDK Basics

**The Developer Experience Team**

8 September 2021



# Presenters

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Alexandre Meneghello  
Software Engineering



Alex Xavier  
Product Marketing



Avery Perkins  
Product Marketing



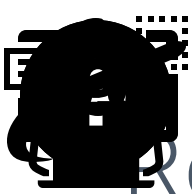
# The Virtual Developer Bench

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**The Virtual Developer Bench is the developer's opportunity to engage *directly* with the Sabre experts who know their product inside and out.**

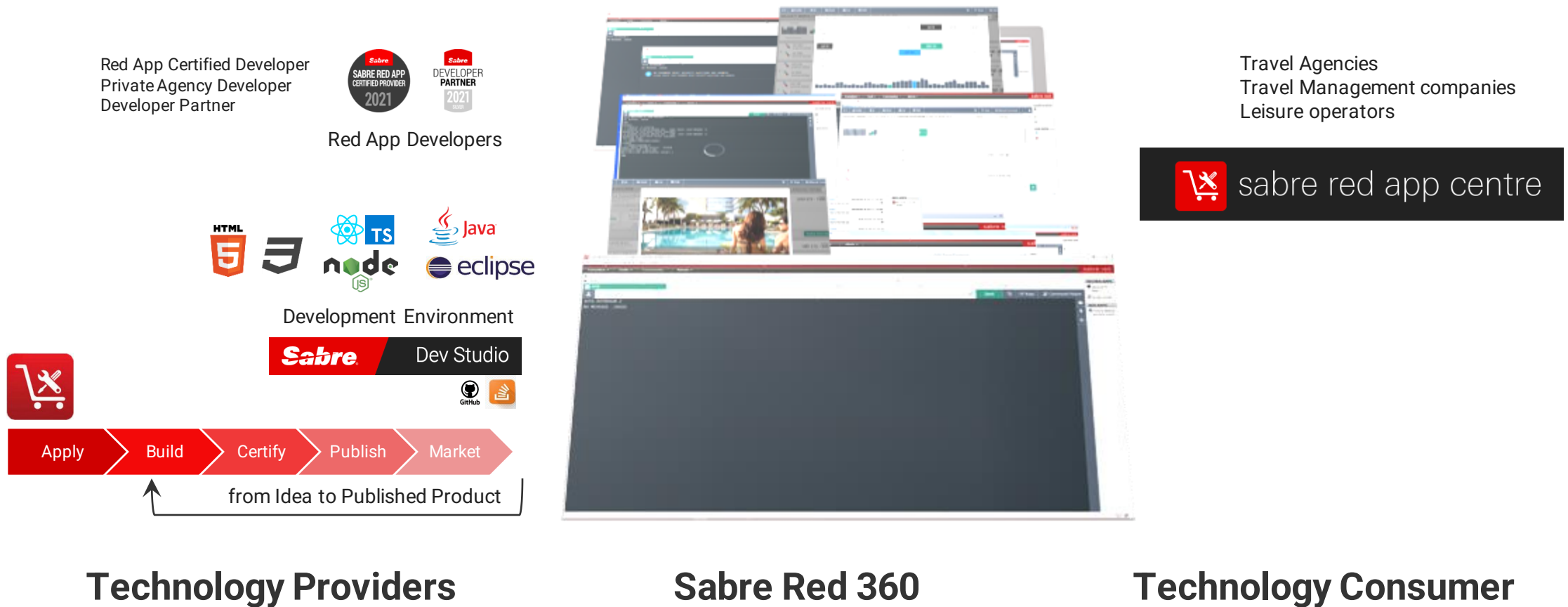
By the end of today's call you will:

- Know how to install the SDK
- Understand IDE preparation
- Have viewed how to create a project structure for a Red App
- Know how to run/debug your project



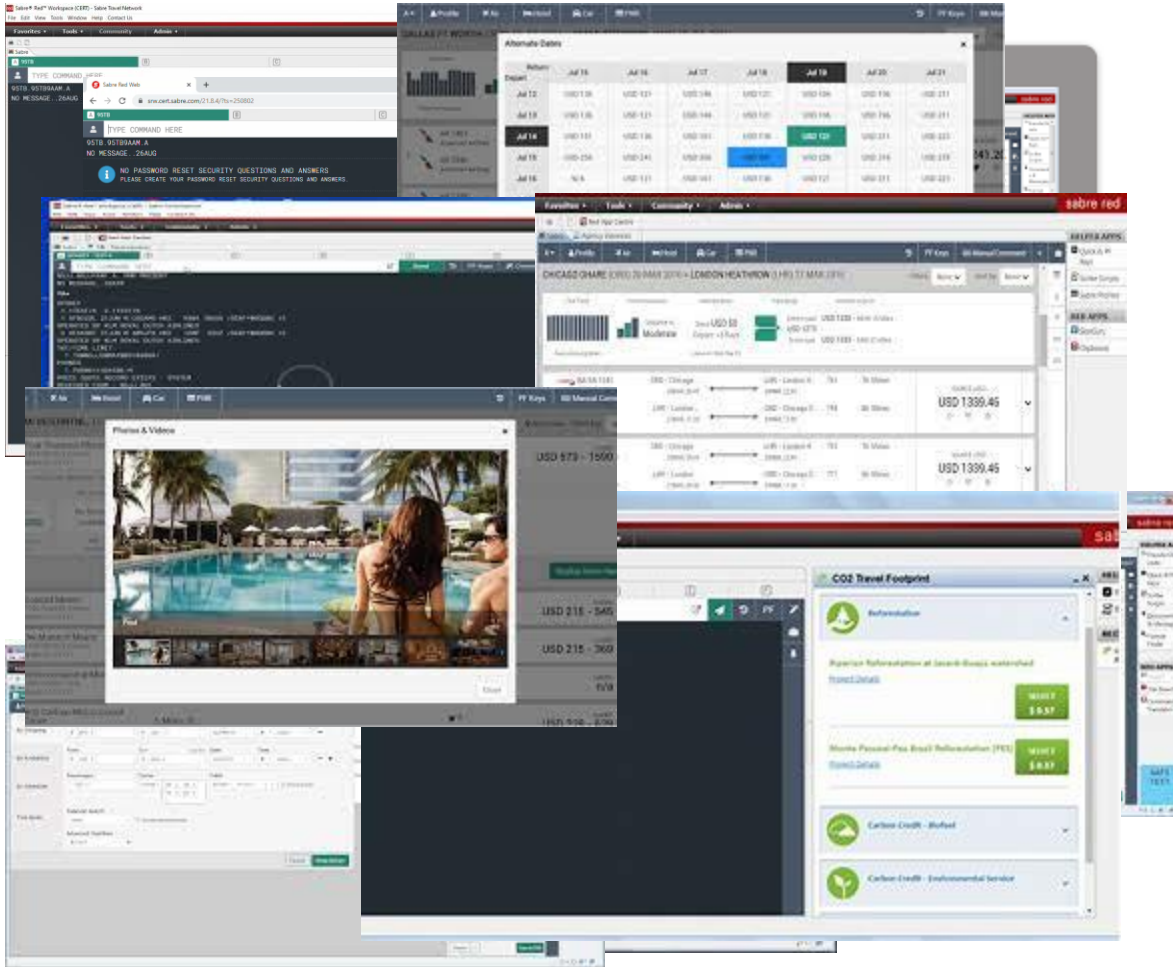
# Red App ecosystem overview

Sabre Red 360 is responsible for an entire ecosystem involving Travel technology producers and consumers, through its innovative Red App Marketplace and Developer network.

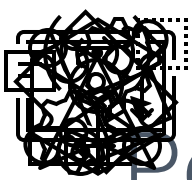




# Sabre Red 360 & customization



- Sabre Red 360 is an end-to-end sales workspace that sells billions in Travel inventory each year. Could be extended by plugging-in modules, or Red Apps.
- Sabre Red 360 main View, offers advanced visualization capabilities and orchestration to the Travel consultant workflow.
  - Workflow, from Sabre Red 360 core, any business operation involved on **SHOP, SELL, BOOK, TICKET** and **MANAGE RESERVATIONS** of FLIGHT, HOTEL, CAR, CRUISE AND RAIL
- Sabre Red 360 Desktop App, it is a multi-windowed workspace application, which hosts Sabre's main view, complimentary user workflows and allows integrations with back-office and external systems.
- Sabre Red Web, Mobile design brings (big) part of sales workspace to Travel Consultant's pocket, or an internet café anywhere.



# Powered by Sabre Red Apps

**Red App is a software package, created with Sabre Developer Tools, which bundles different extensions to customize Sabre Red 360 operations during runtime.**

- Red App bundles could be provisioned to SR 360 through Sabre Red App Centre, using 2 distinct business models:
  - **Private Agency Red Apps**, for limited distribution inside the Travel agency where it was developed.
  - **Public Red Apps**, which are marketed through Sabre Red App center, a B2B Marketplace where Travel agencies could navigate and purchase Red Apps from different Travel Technology and Content Providers.

**Contributions to the User Interface**, allows Red Apps to customize the Travel consultant workspace (Eclipse) or the primary Sabre Red 360 UI (NGV)

**Workflow extensions**, allow access to data and controlled execution of Business operations done through Sabre Red 360 main View

**Communication Foundations**, allows Red Apps to access Sabre Red Platform Services exposed through SR 360 runtime and abroad

**Tools and Utilities**, general utility layer, allows to deal with user settings and authentication, as well integration with external systems and process automation.

UI Widgets	Workflow	Web Browser	Workspace	
Pop-up Forms Tile Widgets Command button + Popover React bootstrap	Workflow panel button Nudge Add to PNR form Refresh PNR Interstitial	CrossWindow WebKit View / Editor Javascript API	View / Editor window Red App Sidebar Workspace Menus Notifications Modal Dialog	
SHOP, PRICE	BOOK	SELL	TICKET	MANAGE
Air, Hotel Exchange Hotel Details	Air, Hotel	Air, Hotel, Car Passive Add	Air	End PNR Modify PNR Queue Place
Sabre APIs	Sabre Commands	Web	Active Listening	Security
REST and SOAP API calls GetReservation	Execute Sabre Commands LLS Calls - HOST	HTTP Request	EMU_RESPONSE Event EMU_COMMAND Service	SSO Assertions
Agency	Support	Workspace		
Agent Profile Config Services	Log services First run	Plugin resources Internationalization		

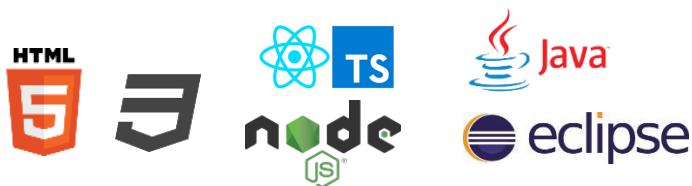


# Sabre Red 360 SDK

Red App Certified Developer  
Private Agency Developer  
Developer Partner



## Red App Developers



## Development Environment



from Idea to Published Product

## Who are Red App developers ?

- A Red App Certified Provider is a developer who is approved by Sabre. After Sabre approves a developer and their proposal, the developer can start creating a Red App
- Sabre developers require Sabre PCC + Agent ID on CERT environment, if you don't have access to the credentials, please contact your Agency Admin.

## Complete solution to build, test and publish Red Apps

### Development Environment

- Web SDK – Storefront, Web Developer Tools + Sabre Concierge Tool
- Java SDK - Back office, workspace Integration, Eclipse IDE + Java

### Idea to Product workflow

- Apply, submit your idea
- Build and Test source code using Development Environment
- Generate Red App bundle and submit to beta test and certification process (CERT and PROD environments)
- Publish your Red App on the B2B marketplace
- Patch defects and release new features

### Help and Resources, developer community

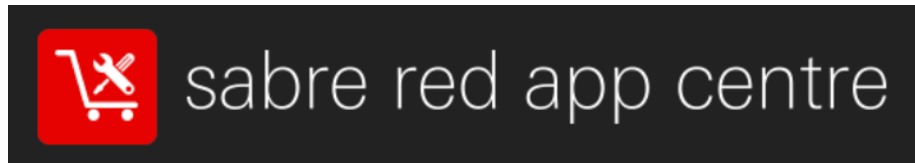
- Sabre Red App Centre – upload, certify and publish your Red App. Manage user messaging and sales operations.
- Sabre Dev Studio – developer portal, access SDK and API documentation, read blog posts and get up to date on latest Industry and Tech trends.
- Online community – leverage Developer community, access sample codes and tutorials.



# Streamline Travel Consultant workflows

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Travel Agencies  
Travel Management companies  
Leisure operators



- Who are potential users of a Red App ?
  - Travel agencies, travel management companies, leisure operators, over 370,000 agents in 135 countries, most of whom use the Sabre Red 360.
- How Red Apps are marketed and provisioned for end users?
  - The Sabre Red App Centre is the world's first B2B app marketplace for the travel industry, where agents can shop and request Red Apps that they can use to extend the capabilities of their Sabre Red 360
    - Shop Red Apps that extend the power of SR 360
    - Order your Red App in the Sabre Red App Centre
    - Activate your Red App using Admin tools



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Developers Resources & Downloads

Setup Development Environment

Build and Debug Red Apps

Bundle and Publishing procedures



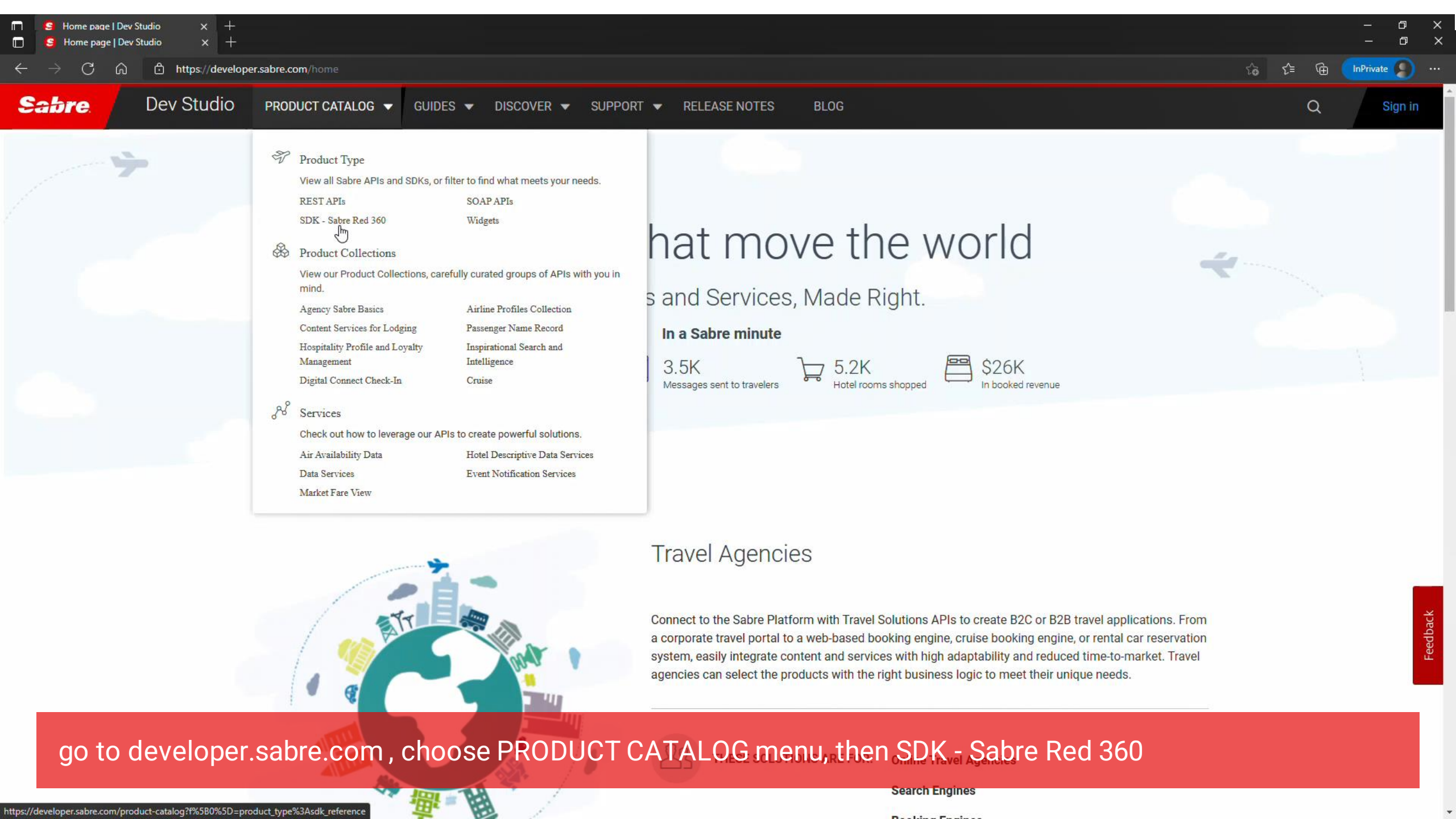


# Getting started with Red App Software Developer Toolkit

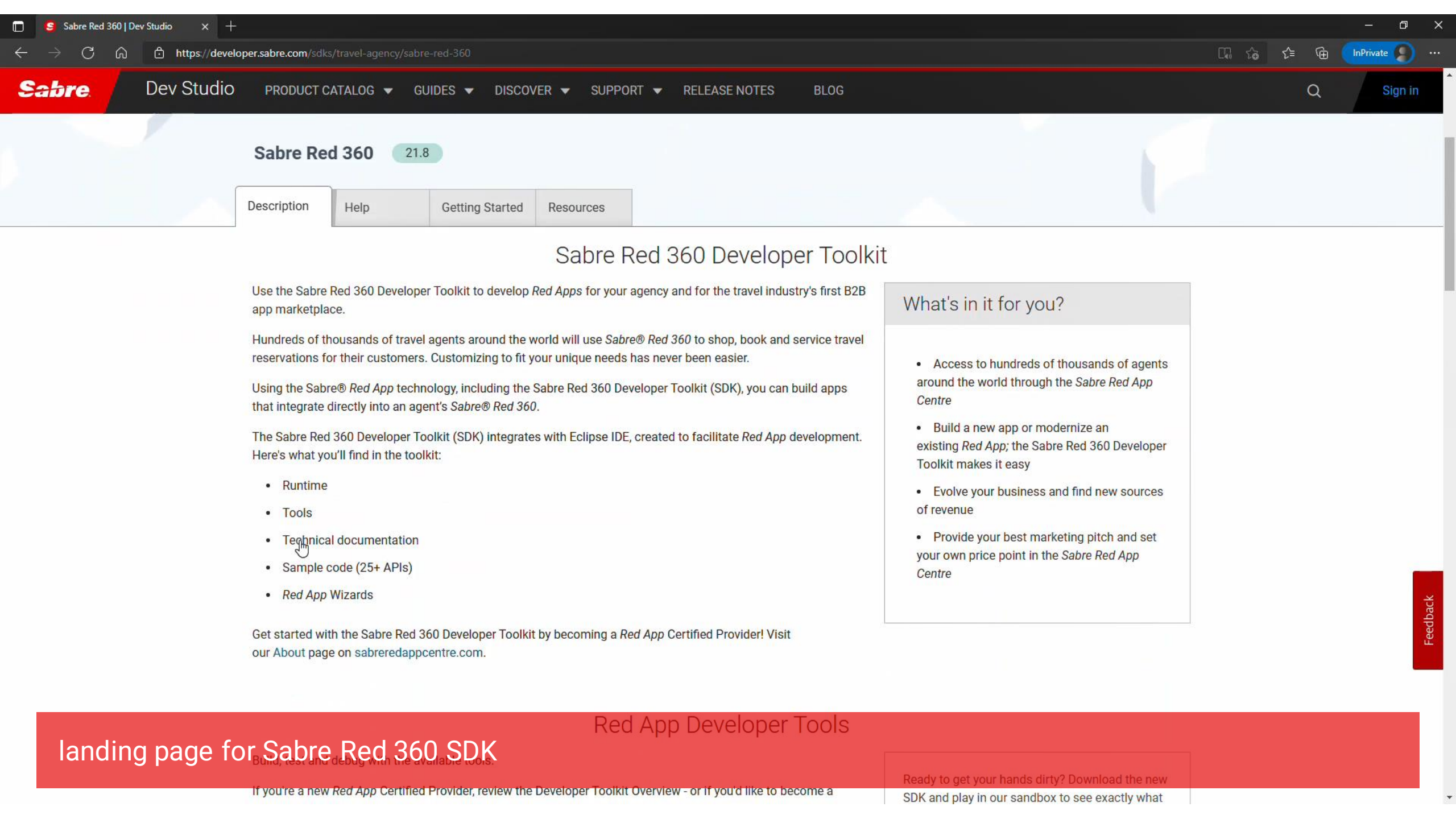
Step by step guide about installation procedures and creation of Red App project

## Developers Resources & Downloads

- ☐ Visit **developer.sabre.com**, Sabre's *Developers Portal*
- ☐ Head over to Sabre Red 360 SDK section, familiarize with *help, getting started and resources areas*
- ☐ Download the SDK
  - Released monthly, Available on PC / Mac platform
  - Sabre Concierge Tool
  - Sabre Red 360 Target Platform
  - Red App Developer tools for Eclipse IDE
  - Sample Red App projects
  - SDK Documentation
- ☐ Download any other necessary tools and apps
  - Eclipse IDE, Java runtime
  - Sabre Red 360 CERT / PROD Installers
  - Chrome Browser with access to Developer Tools
  - Visual Studio Code



go to developer.sabre.com , choose PRODUCT CATALOG menu, then SDK - Sabre Red 360



## Sabre Red 360

21.8

Description

Help

Getting Started

Resources

### Sabre Red 360 Developer Toolkit

Use the Sabre Red 360 Developer Toolkit to develop *Red Apps* for your agency and for the travel industry's first B2B app marketplace.

Hundreds of thousands of travel agents around the world will use *Sabre® Red 360* to shop, book and service travel reservations for their customers. Customizing to fit your unique needs has never been easier.

Using the Sabre® *Red App* technology, including the Sabre Red 360 Developer Toolkit (SDK), you can build apps that integrate directly into an agent's *Sabre® Red 360*.

The Sabre Red 360 Developer Toolkit (SDK) integrates with Eclipse IDE, created to facilitate *Red App* development. Here's what you'll find in the toolkit:

- Runtime
- Tools
- Technical documentation
- Sample code (25+ APIs)
- *Red App* Wizards

Get started with the Sabre Red 360 Developer Toolkit by becoming a *Red App* Certified Provider! Visit our [About](#) page on [sabreredappcentre.com](#).

#### What's in it for you?

- Access to hundreds of thousands of agents around the world through the *Sabre Red App Centre*
- Build a new app or modernize an existing *Red App*; the Sabre Red 360 Developer Toolkit makes it easy
- Evolve your business and find new sources of revenue
- Provide your best marketing pitch and set your own price point in the *Sabre Red App Centre*

Feedback

landing page for Sabre Red 360 SDK

Red App Developer Tools

Ready to get your hands dirty? Download the new SDK and play in our sandbox to see exactly what

Sabre Red 360

21.8

- Description
- Help
- Getting Started
- Resources

Sabre Red 360 Software Development Kit Help

Getting Started

Getting Started with Red Apps

Red Apps Developer FAQs

Sabre SDK Runner Tool

Sabre Red Workspace Developer Toolkit Help

Sabre Red Workspace Developer Toolkit Help Home

How Do I Start?

Red App Legal Disclaimers

Red App Advisories

Audience

Red App Development using WebKit Browser

Introducing Red Apps and the Developer Toolkit

Red App Requirements and Standards

Plug-In Projects

Workbench or UI Elements

Development Languages and Technologies

Search

Sabre Red 360 Software Development Kit Help

Release 21.8

August 2021

How do I start?

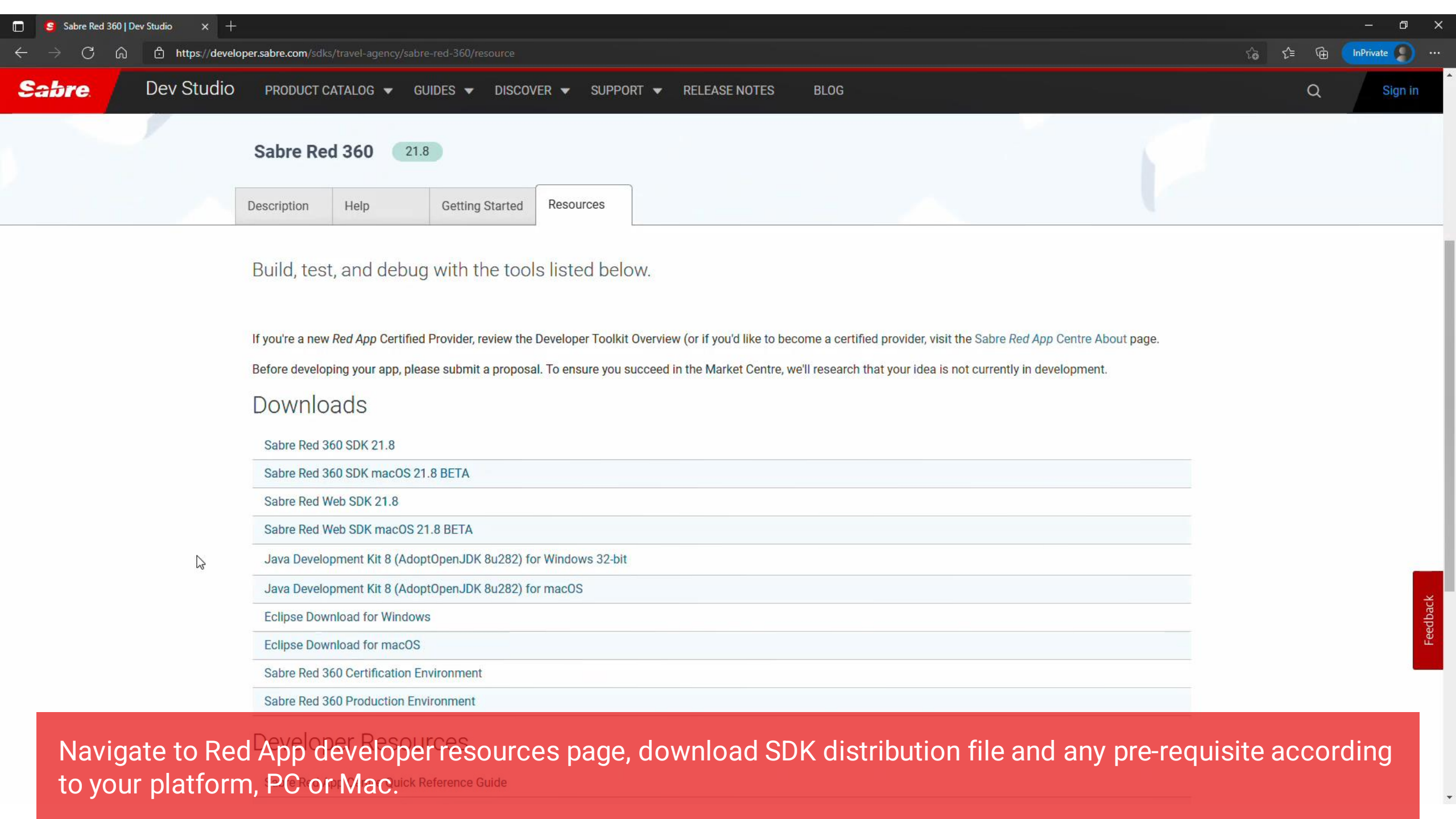
access to online documentation

Feedback









## Sabre Red 360

21.8

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Build, test, and debug with the tools listed below.

If you're a new Red App Certified Provider, review the Developer Toolkit Overview (or if you'd like to become a certified provider, visit the Sabre Red App Centre About page.

Before developing your app, please submit a proposal. To ensure you succeed in the Market Centre, we'll research that your idea is not currently in development.

### Downloads

Sabre Red 360 SDK 21.8

Sabre Red 360 SDK macOS 21.8 BETA

Sabre Red Web SDK 21.8

Sabre Red Web SDK macOS 21.8 BETA

Java Development Kit 8 (AdoptOpenJDK 8u282) for Windows 32-bit

Java Development Kit 8 (AdoptOpenJDK 8u282) for macOS

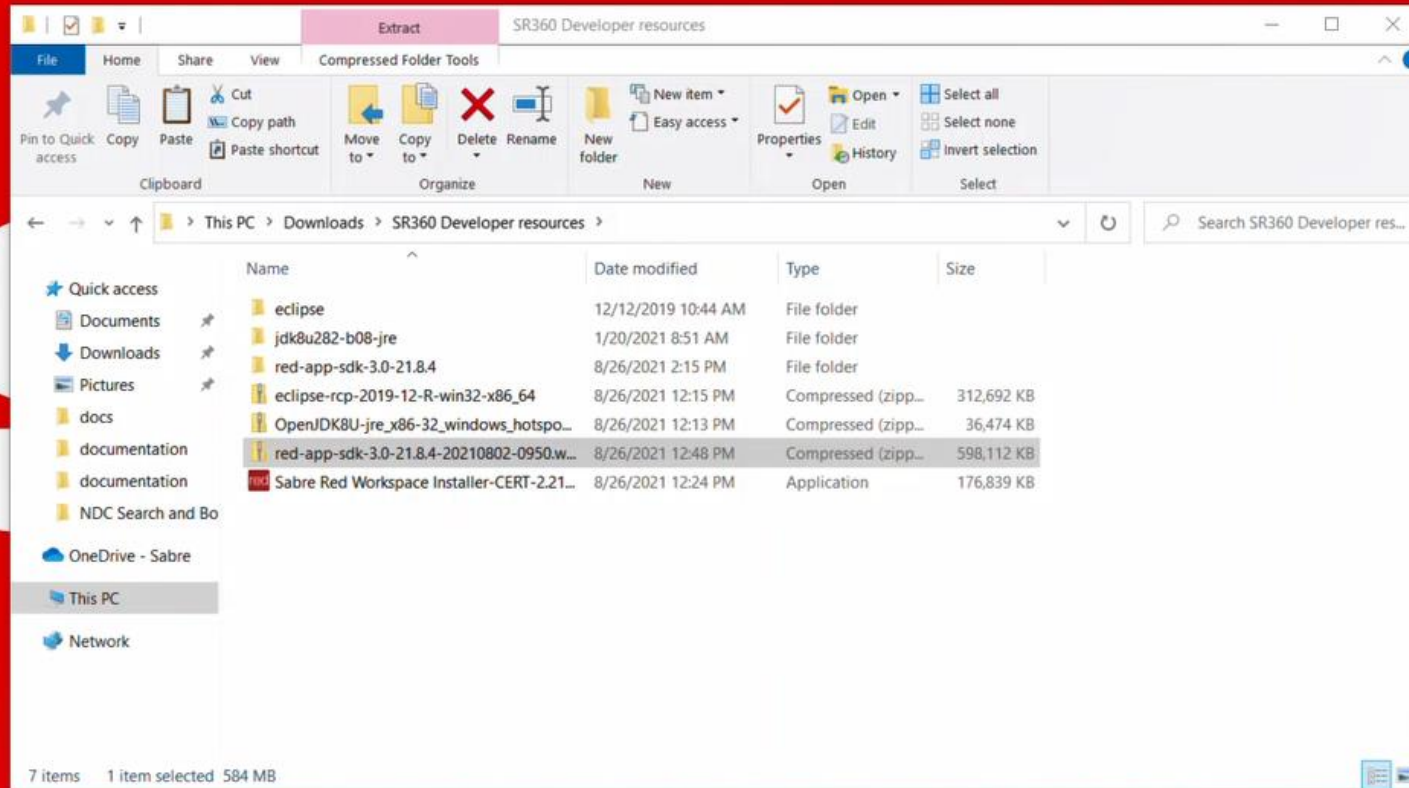
Eclipse Download for Windows

Eclipse Download for macOS

Sabre Red 360 Certification Environment

Sabre Red 360 Production Environment

Navigate to Red App developer resources page, download SDK distribution file and any pre-requisite according to your platform, PC or Mac.



Prepare a folder with downloaded resource files, then let's begin installing Development environment...



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Developers Resources & Downloads

Setup Development Environment

Build and Debug Red Apps

Bundle and Publishing procedures



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

## Setup Development Environment



**Java SDK + Eclipse IDE**, a framework used to build Red Apps which are based on the Eclipse RCP specification, coded using Java language and extensions to the Eclipse workspace manager.



**Web SDK**, framework used to build Web Modules, or Web Red Apps, which are customizations that applies to Sabre Red 360 Next Generation View (NGV)



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

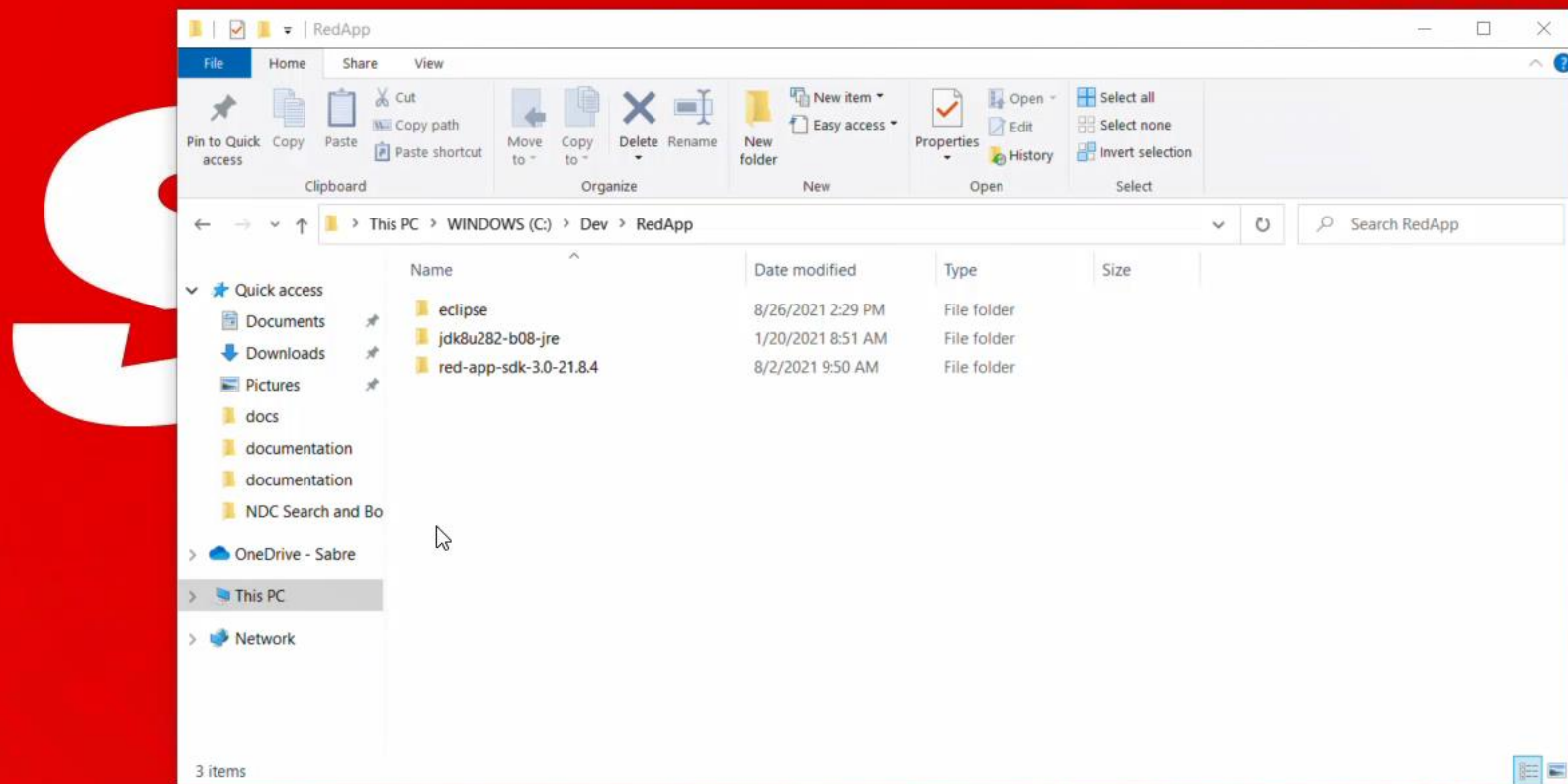
## Setup Development Environment



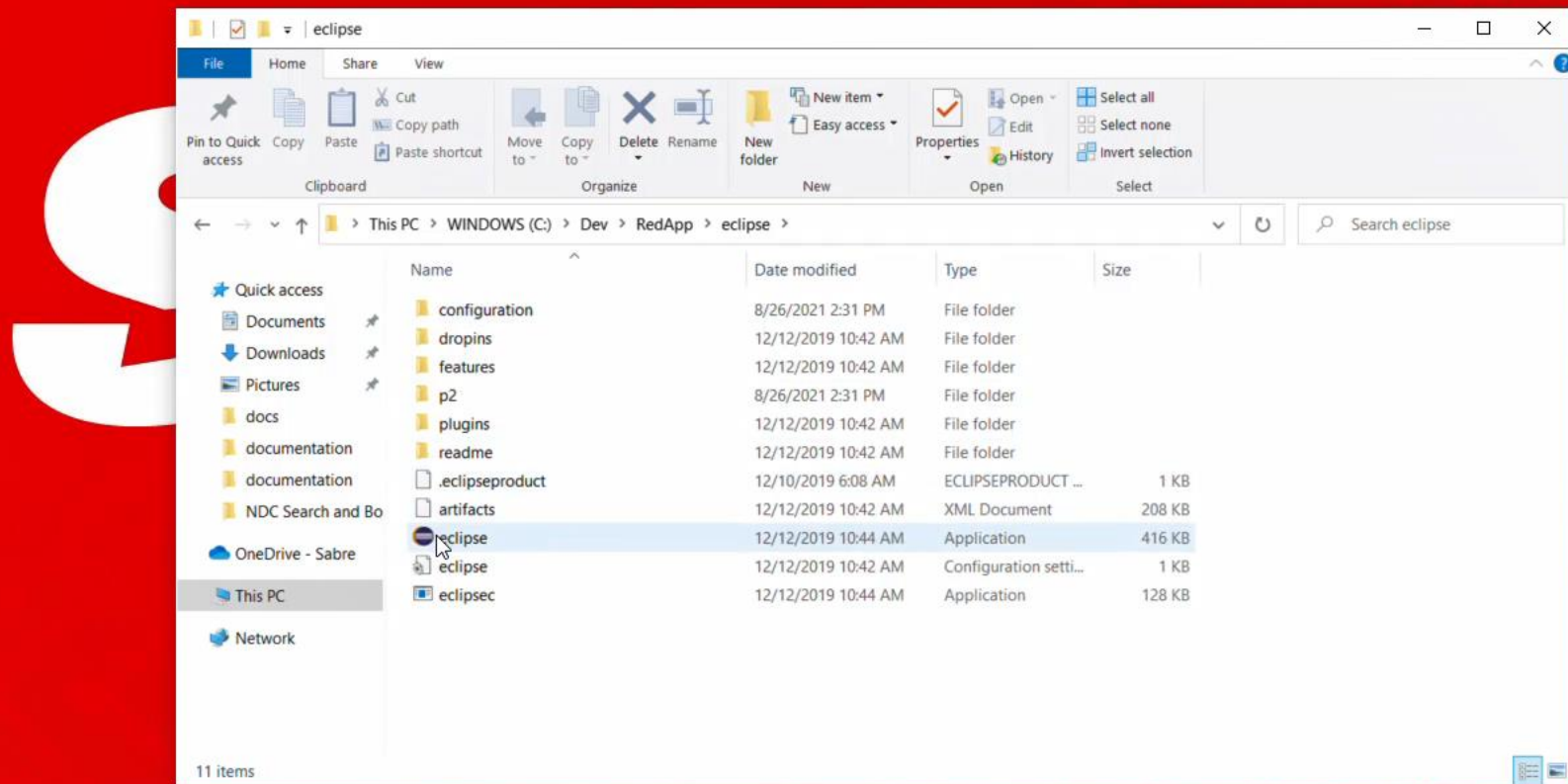
### Java SDK + Eclipse IDE

- Unpack and run Eclipse IDE
- Configure Target Platform
- Configure Eclipse run/debug settings
- Configure Red App Tools

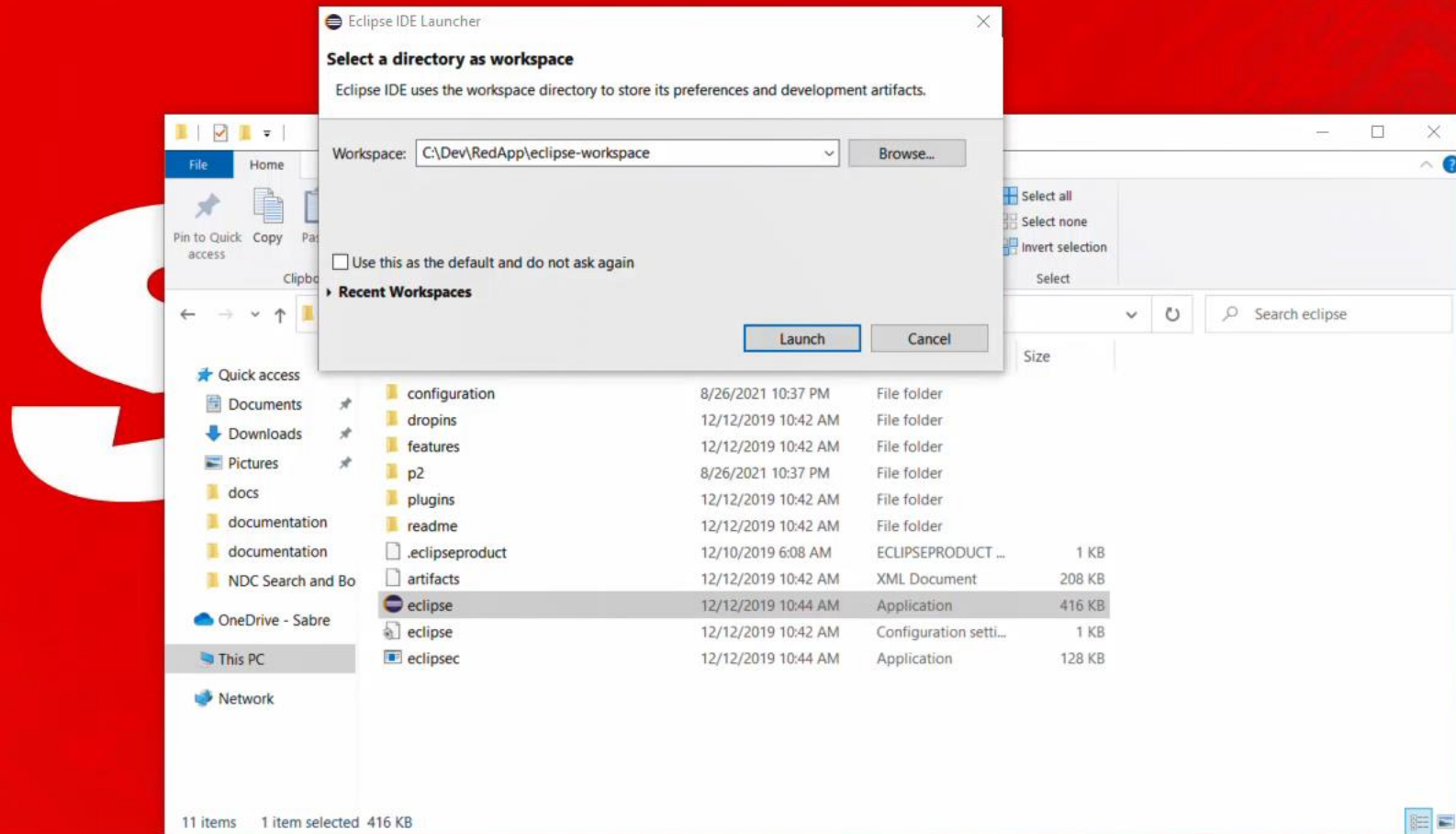




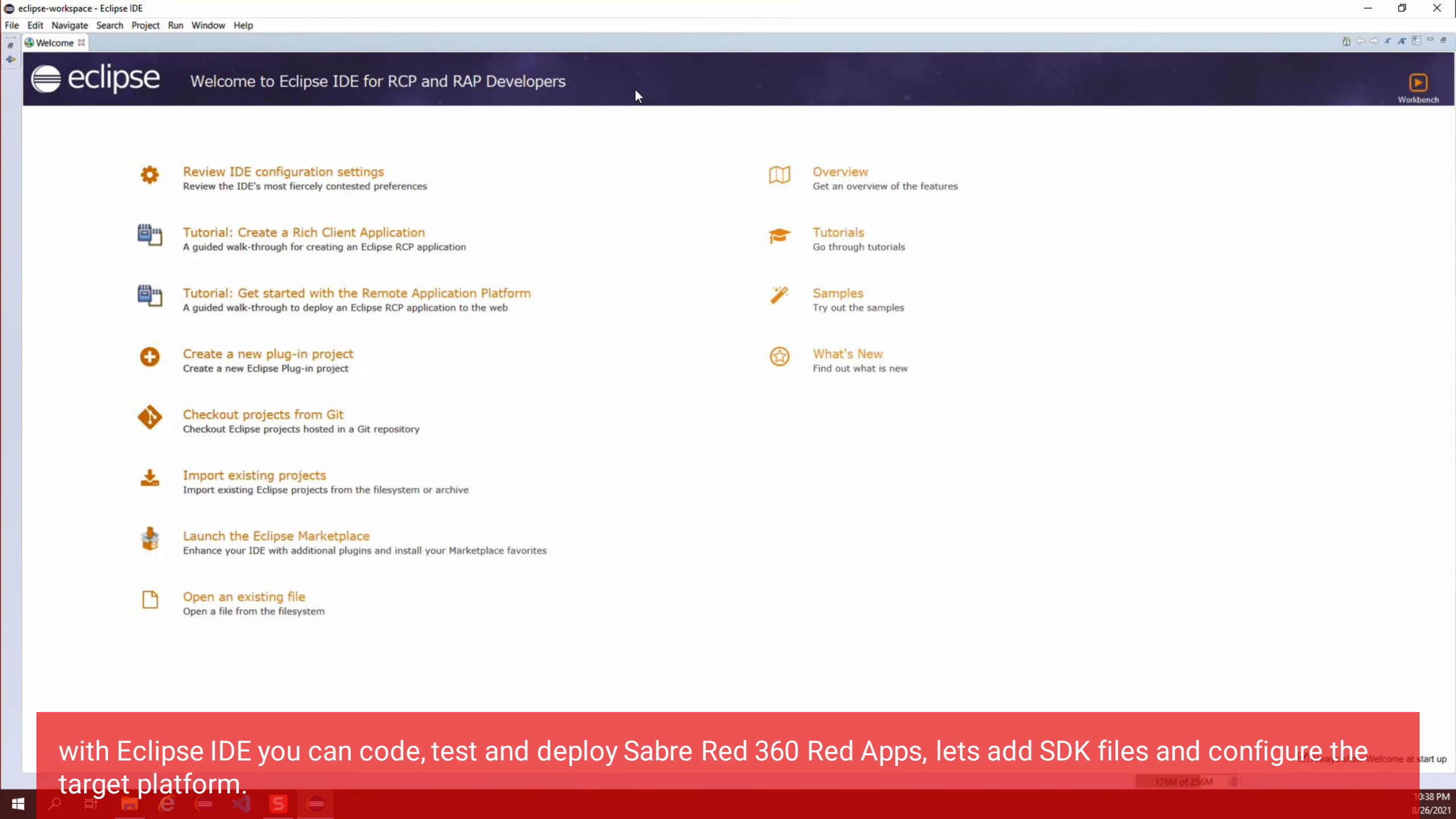
create a folder for Eclipse IDE and unpack downloaded file



Eclipse IDE does not require installation, after unpacked just locate and run the application



Define a folder where Eclipse IDE will save your development workspace, then hit Launch to start the IDE.



**Review IDE configuration settings**  
Review the IDE's most fiercely contested preferences



**Overview**  
Get an overview of the features



**Tutorial: Create a Rich Client Application**  
A guided walk-through for creating an Eclipse RCP application



**Tutorials**  
Go through tutorials



**Tutorial: Get started with the Remote Application Platform**  
A guided walk-through to deploy an Eclipse RCP application to the web



**Samples**  
Try out the samples



**Create a new plug-in project**  
Create a new Eclipse Plug-in project



**What's New**  
Find out what is new



**Checkout projects from Git**  
Checkout Eclipse projects hosted in a Git repository



**Import existing projects**  
Import existing Eclipse projects from the filesystem or archive



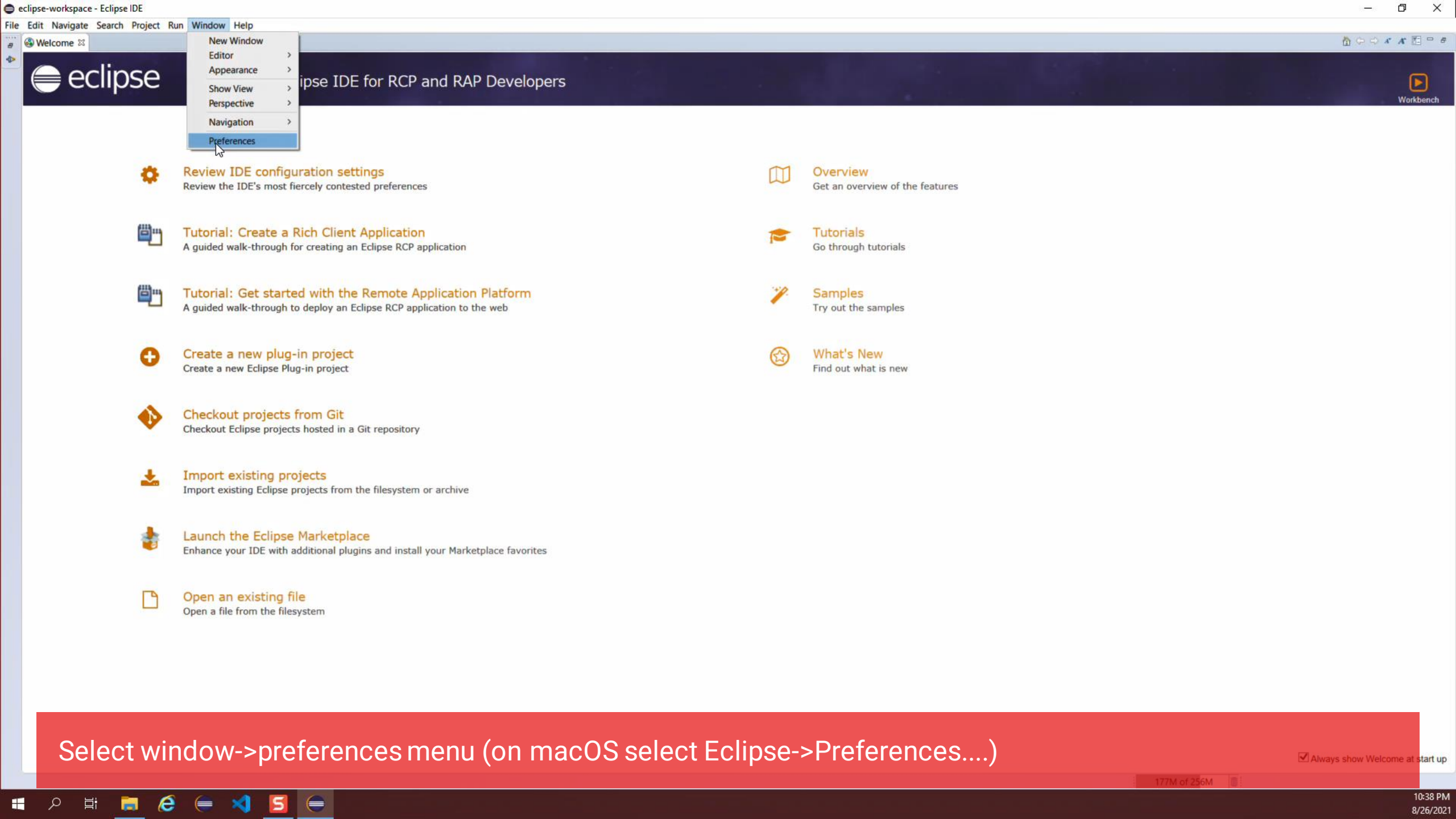
**Launch the Eclipse Marketplace**  
Enhance your IDE with additional plugins and install your Marketplace favorites



**Open an existing file**  
Open a file from the filesystem

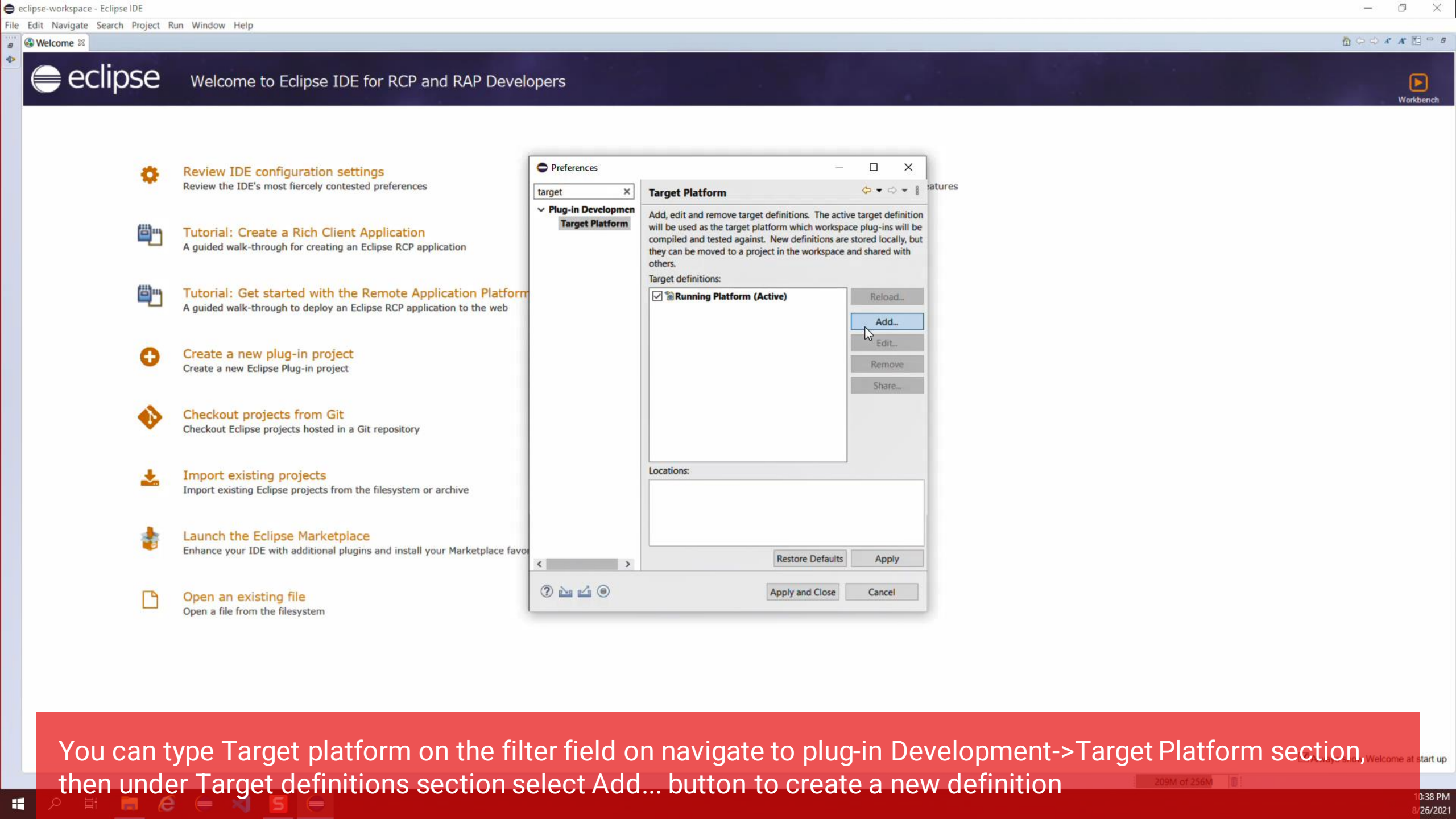
with Eclipse IDE you can code, test and deploy Sabre Red 360 Red Apps, lets add SDK files and configure the target platform.



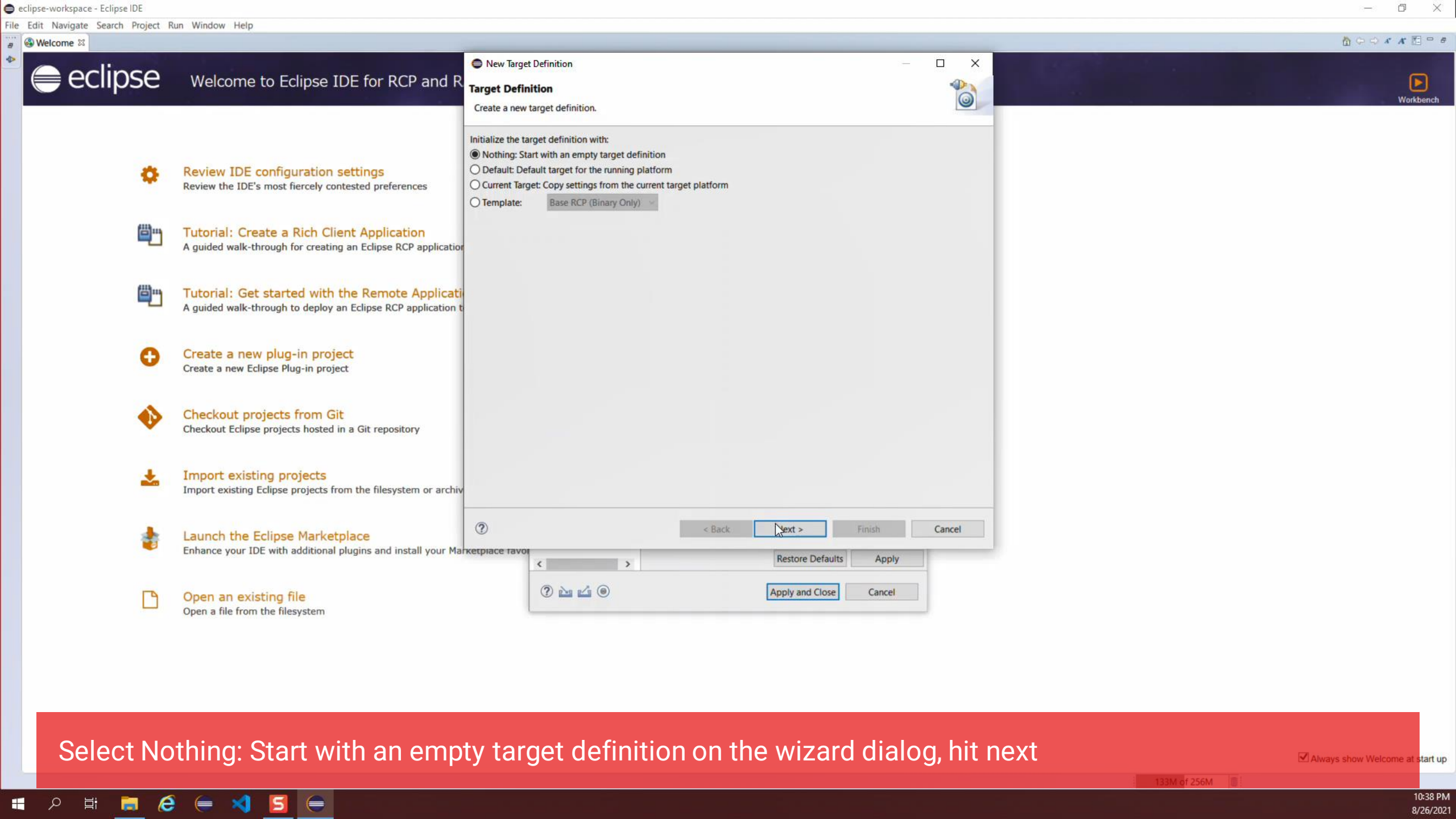


Select window->preferences menu (on macOS select Eclipse->Preferences....)





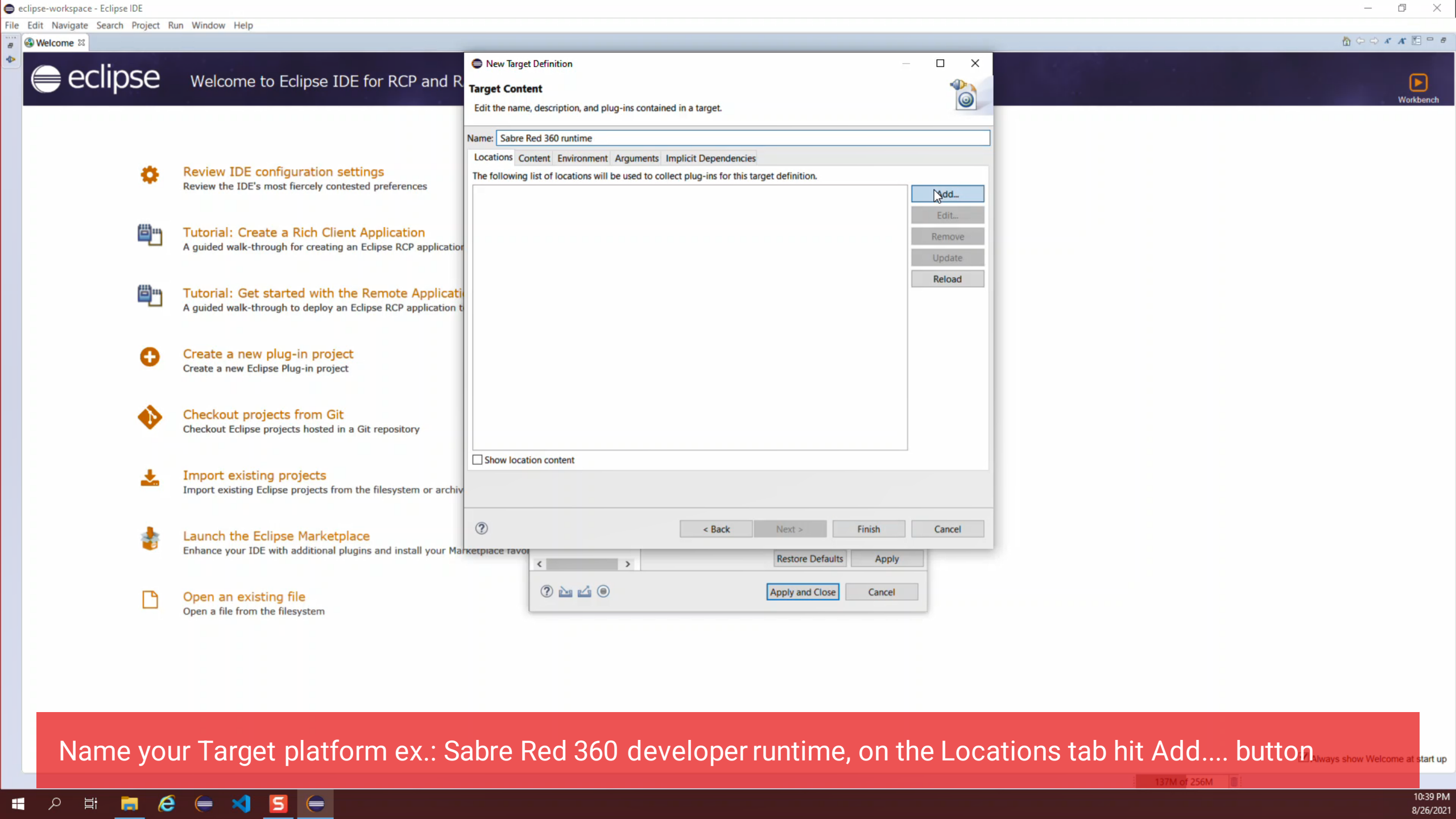
You can type Target platform on the filter field on navigate to plug-in Development->Target Platform section, then under Target definitions section select Add... button to create a new definition



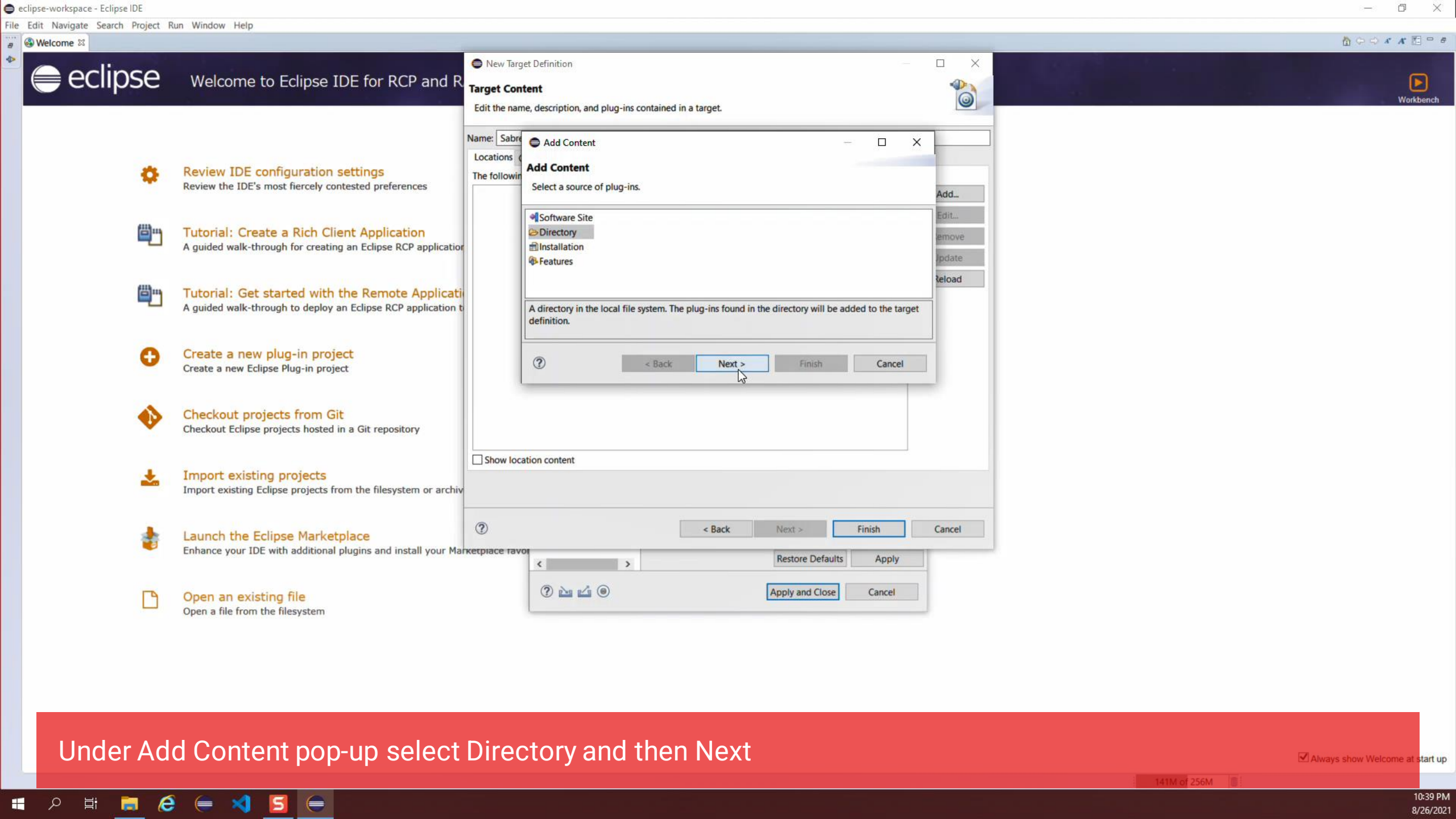
Select Nothing: Start with an empty target definition on the wizard dialog, hit next

☒ Always show Welcome at start up

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Name your Target platform ex.: Sabre Red 360 developer runtime, on the Locations tab hit Add.... button

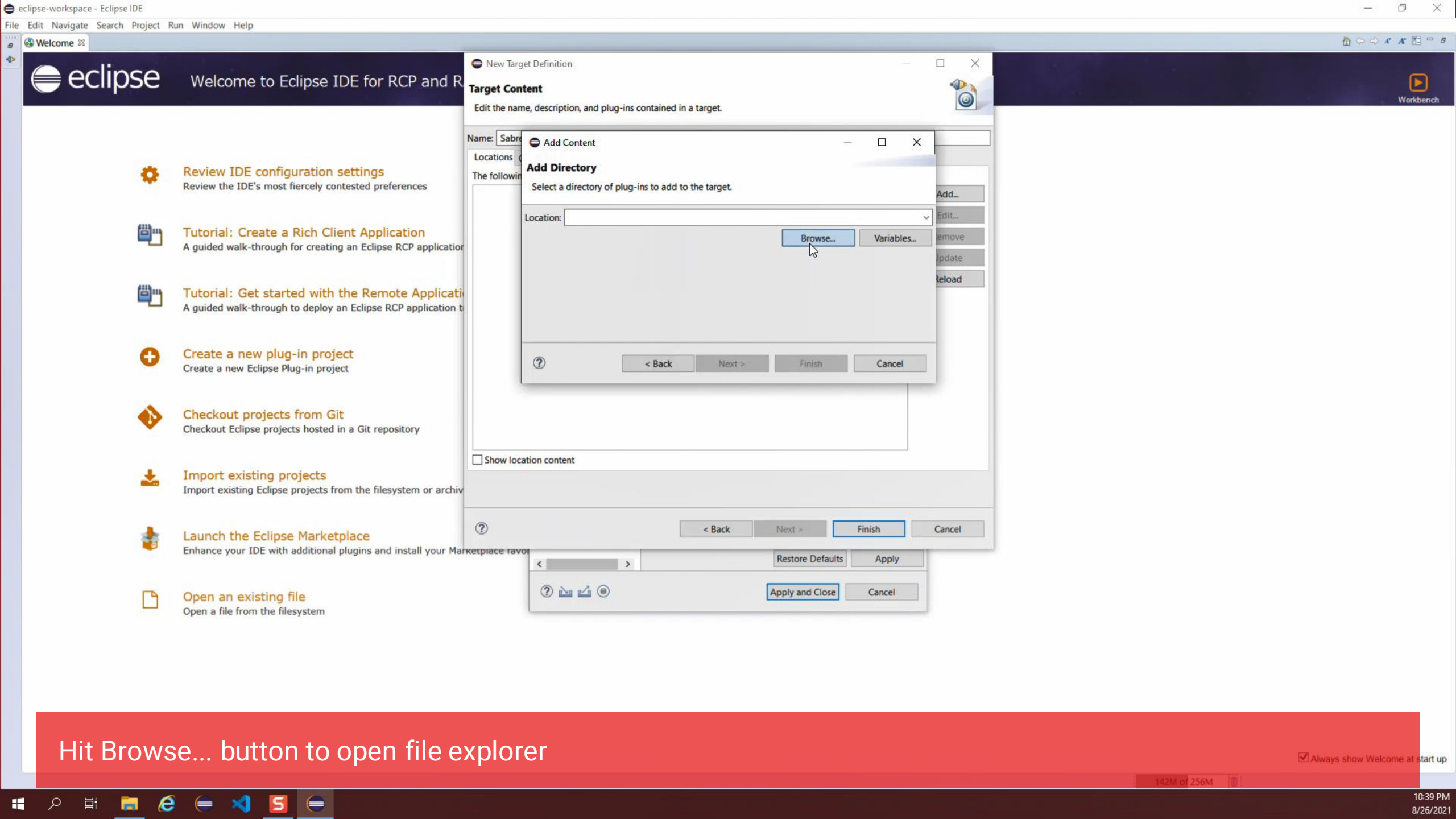


Under Add Content pop-up select Directory and then Next

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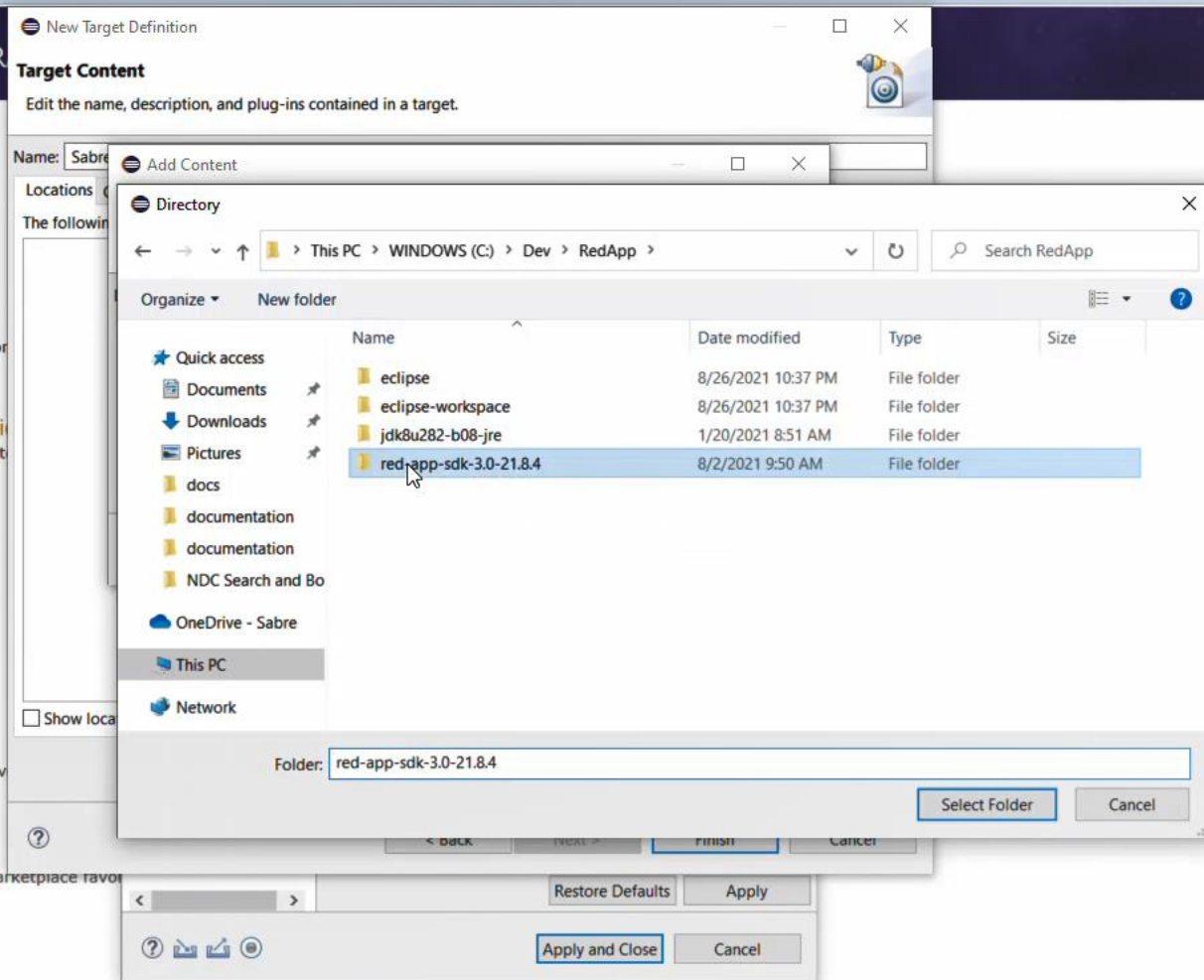


Hit Browse... button to open file explorer

☒ Always show Welcome at start up

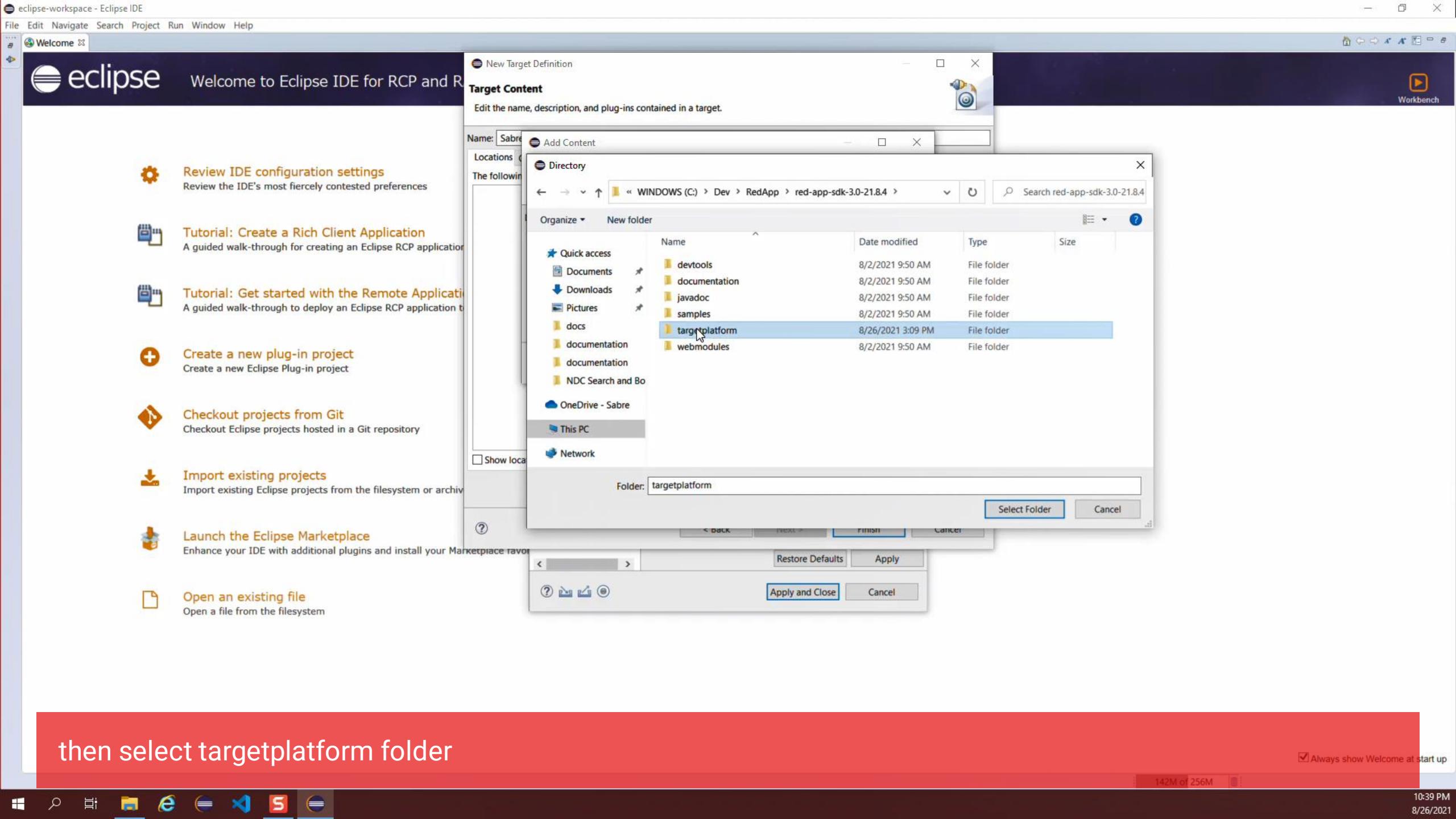
142M of 256M

-  **Review IDE configuration settings**  
Review the IDE's most fiercely contested preferences
-  **Tutorial: Create a Rich Client Application**  
A guided walk-through for creating an Eclipse RCP application
-  **Tutorial: Get started with the Remote Application**  
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Import existing Eclipse projects from the filesystem or archive
-  **Launch the Eclipse Marketplace**  
Enhance your IDE with additional plugins and install your Marketplace
-  **Open an existing file**  
Open a file from the filesystem



## locate the Directory where you extracted the SDK files



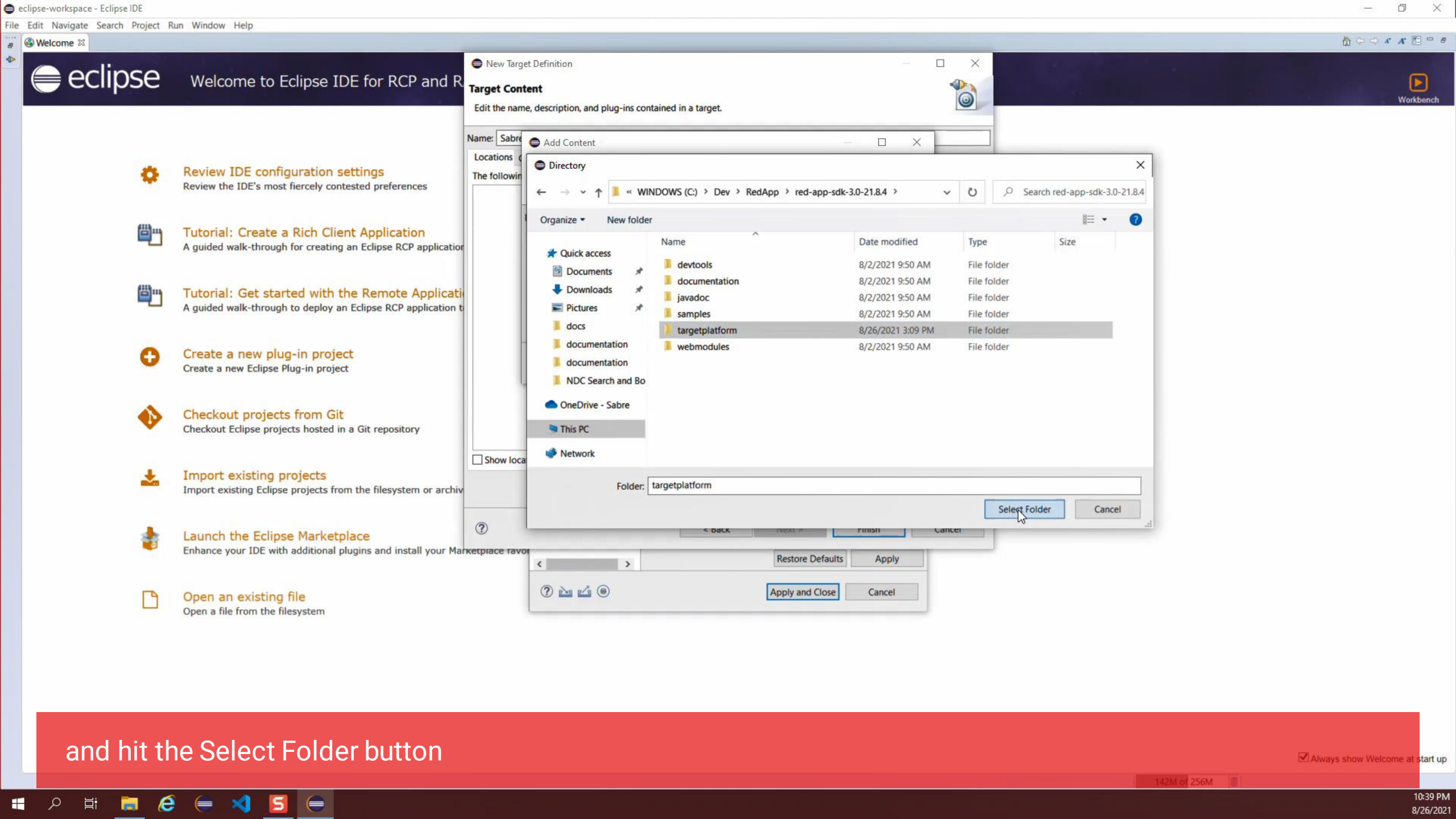


then select targetplatform folder

☒ Always show Welcome at start up

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10:39 PM  
8/26/2021

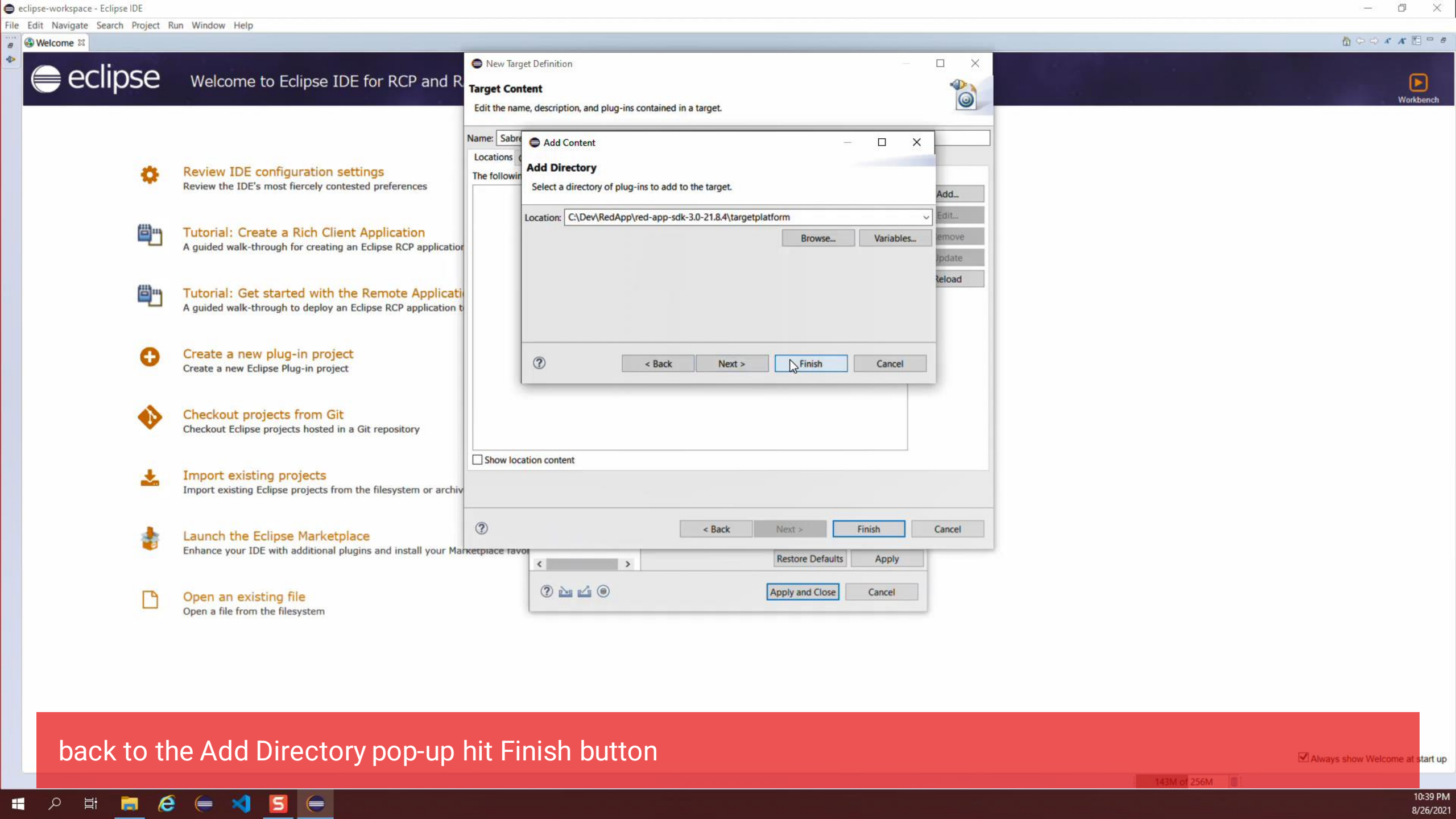


and hit the Select Folder button

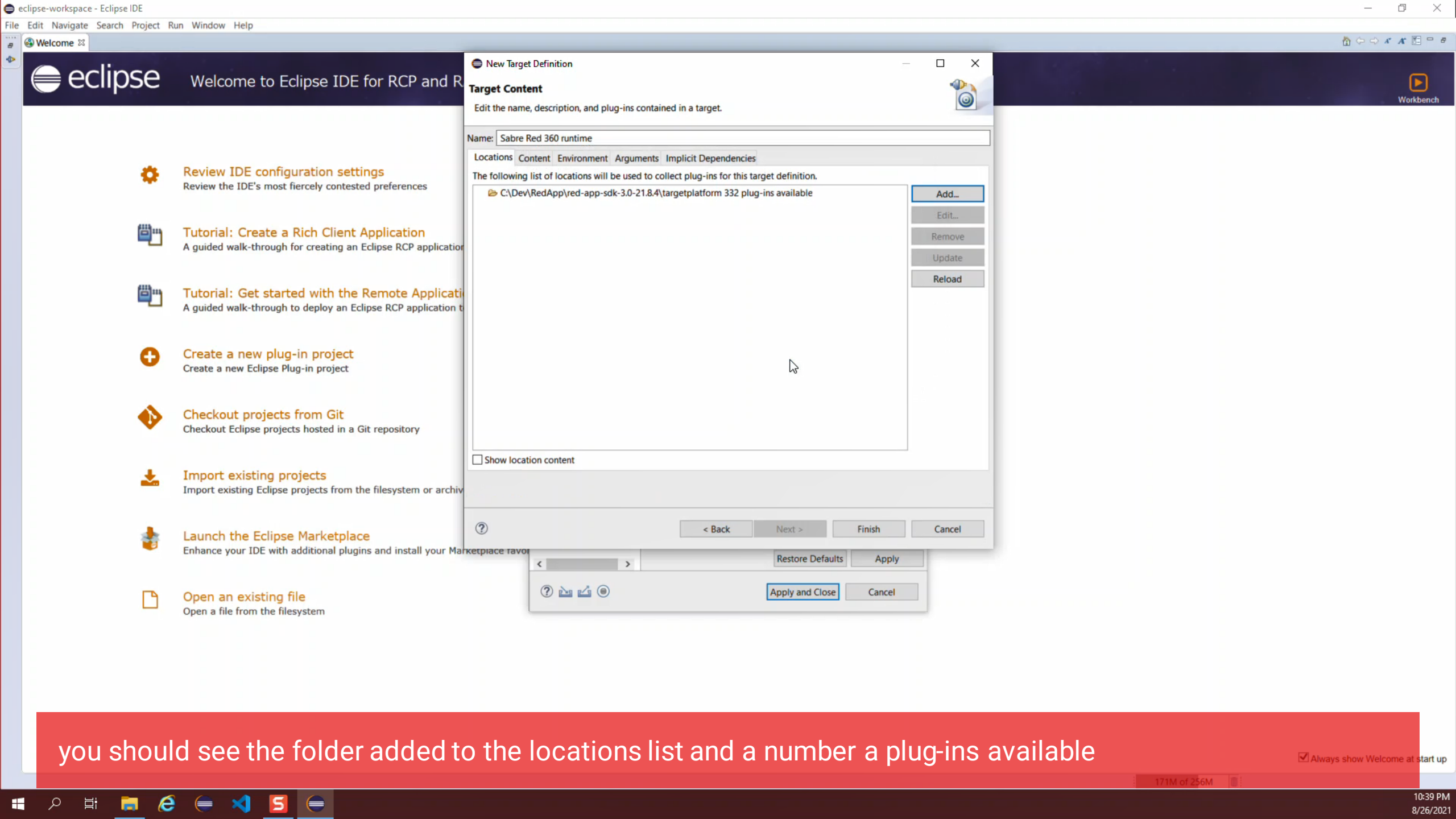
Always show Welcome at start up

142M of 256M

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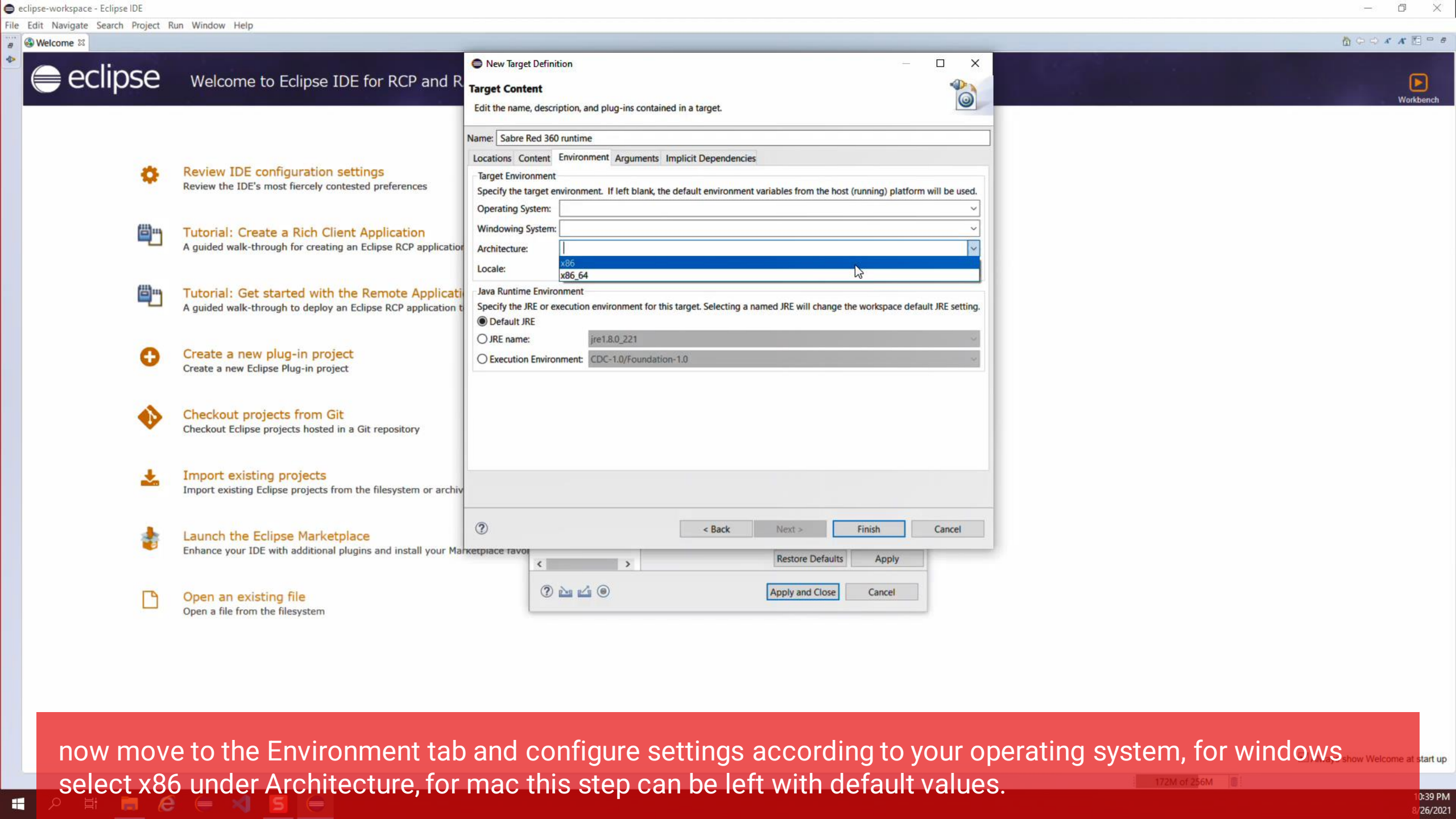


back to the Add Directory pop-up hit Finish button



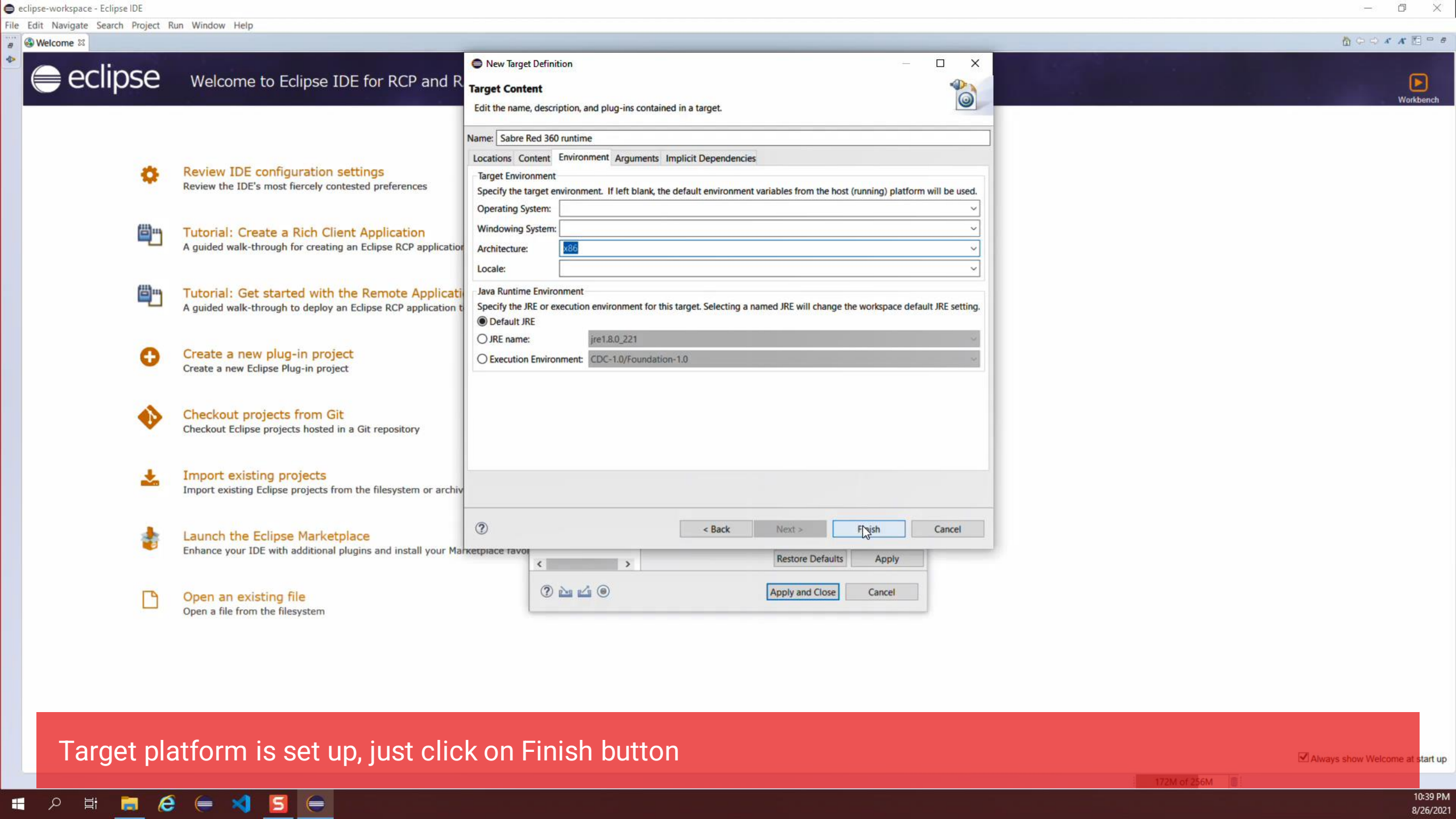
you should see the folder added to the locations list and a number a plug-ins available





now move to the Environment tab and configure settings according to your operating system, for windows select x86 under Architecture, for mac this step can be left with default values.





## New Target Definition

### Target Content

Edit the name, description, and plug-ins contained in a target.

Name: Sabre Red 360 runtime

Locations Content Environment Arguments Implicit Dependencies

#### Target Environment

Specify the target environment. If left blank, the default environment variables from the host (running) platform will be used.

Operating System:

Windowing System:

Architecture: x86

Locale:

#### Java Runtime Environment

Specify the JRE or execution environment for this target. Selecting a named JRE will change the workspace default JRE setting.

☒ Default JRE

☐ JRE name: jre1.8.0\_221

☐ Execution Environment: CDC-1.0/Foundation-1.0



< Back

Next >

Finish

Cancel



Apply and Close

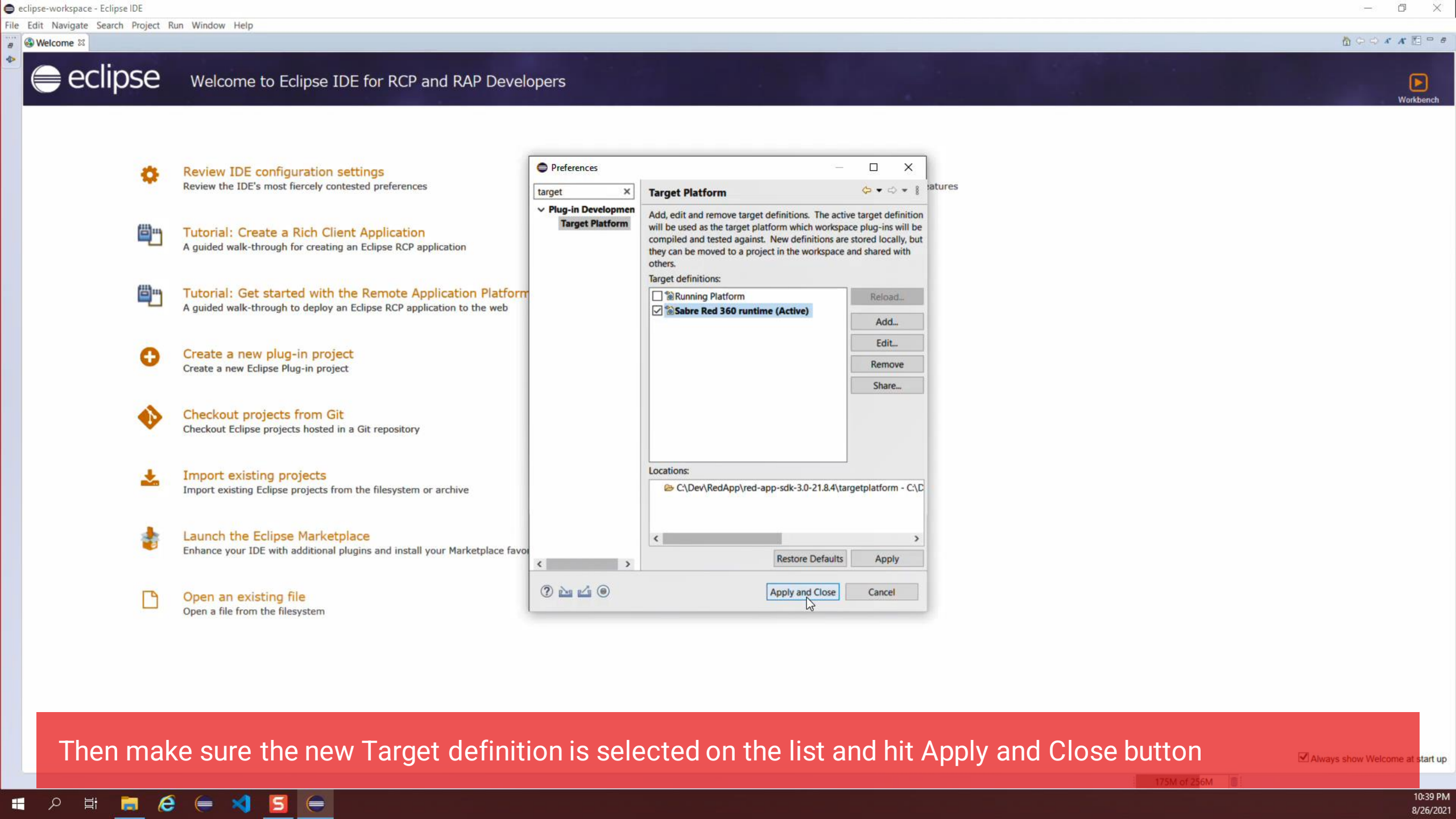
Cancel









Target platform is set up, just click on Finish button

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8/26/2021



-  **Review IDE configuration settings**  
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Preferences

target

Plug-in Development

Target Platform

**Target Platform**

Add, edit and remove target definitions. The active target definition will be used as the target platform which workspace plug-ins will be compiled and tested against. New definitions are stored locally, but they can be moved to a project in the workspace and shared with others.

Target definitions:

- ☐ Running Platform
- ☒ Sabre Red 360 runtime (Active)

Locations:

C:\Dev\RedApp\red-app-sdk-3.0-21.8.4\targetplatform - C:\Dev\RedApp\red-app-sdk-3.0-21.8.4\targetplatform

Reload...

Add...

Edit...

Remove

Share...

Restore Defaults

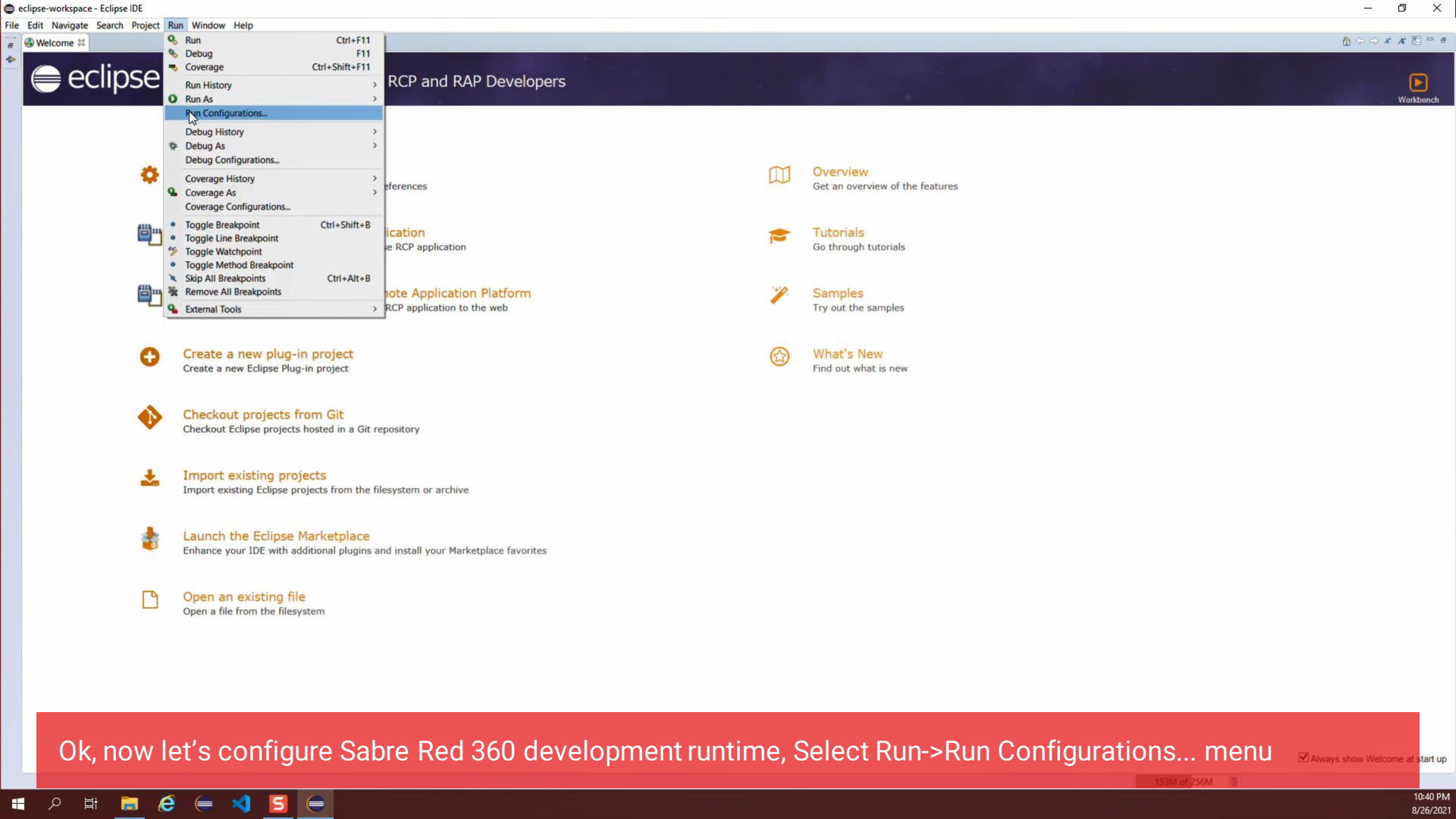
Apply

Apply and Close

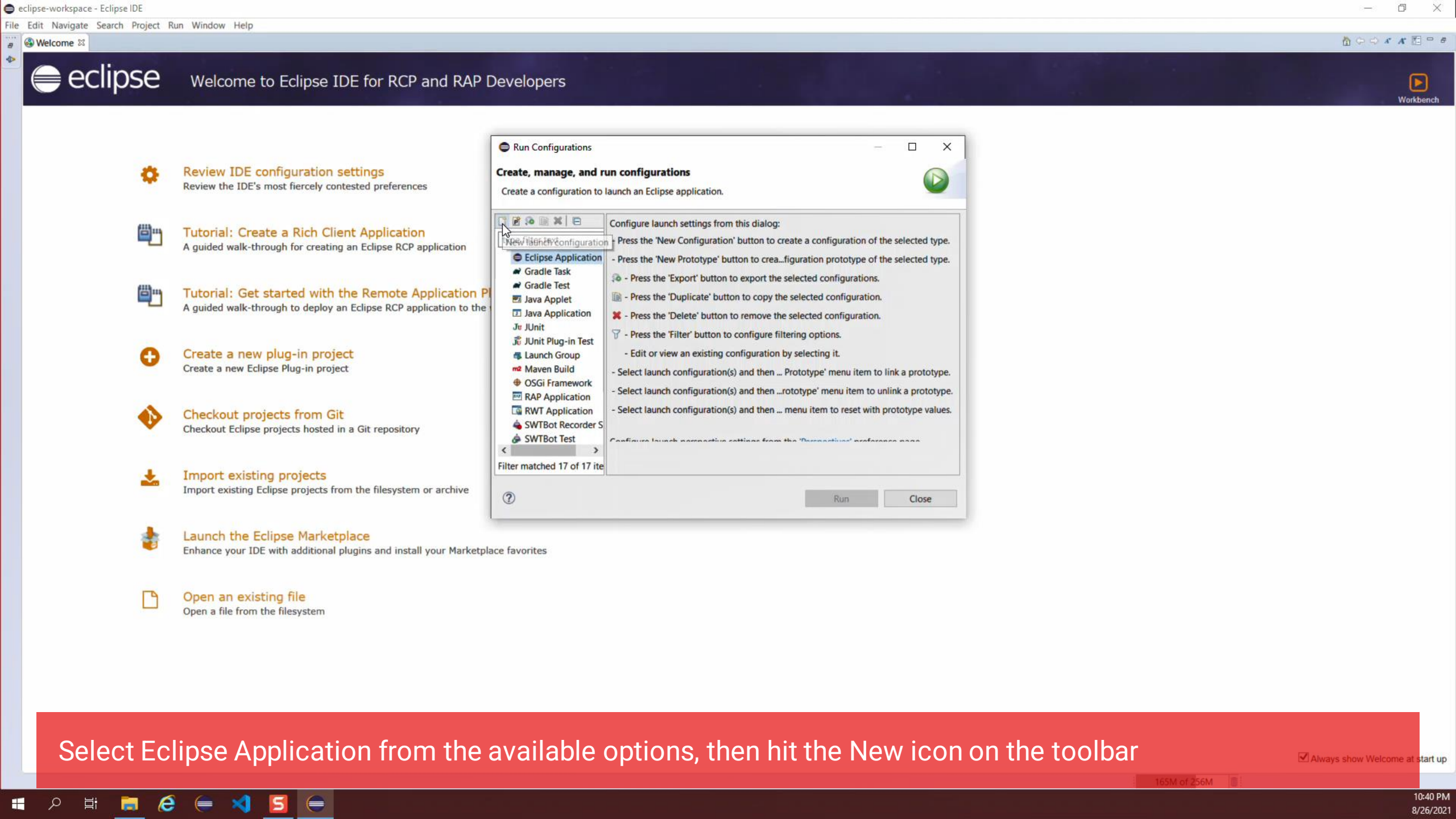
Cancel

Then make sure the new Target definition is selected on the list and hit Apply and Close button

☒ Always show Welcome at start up



Ok, now let's configure Sabre Red 360 development runtime, Select Run->Run Configurations... menu

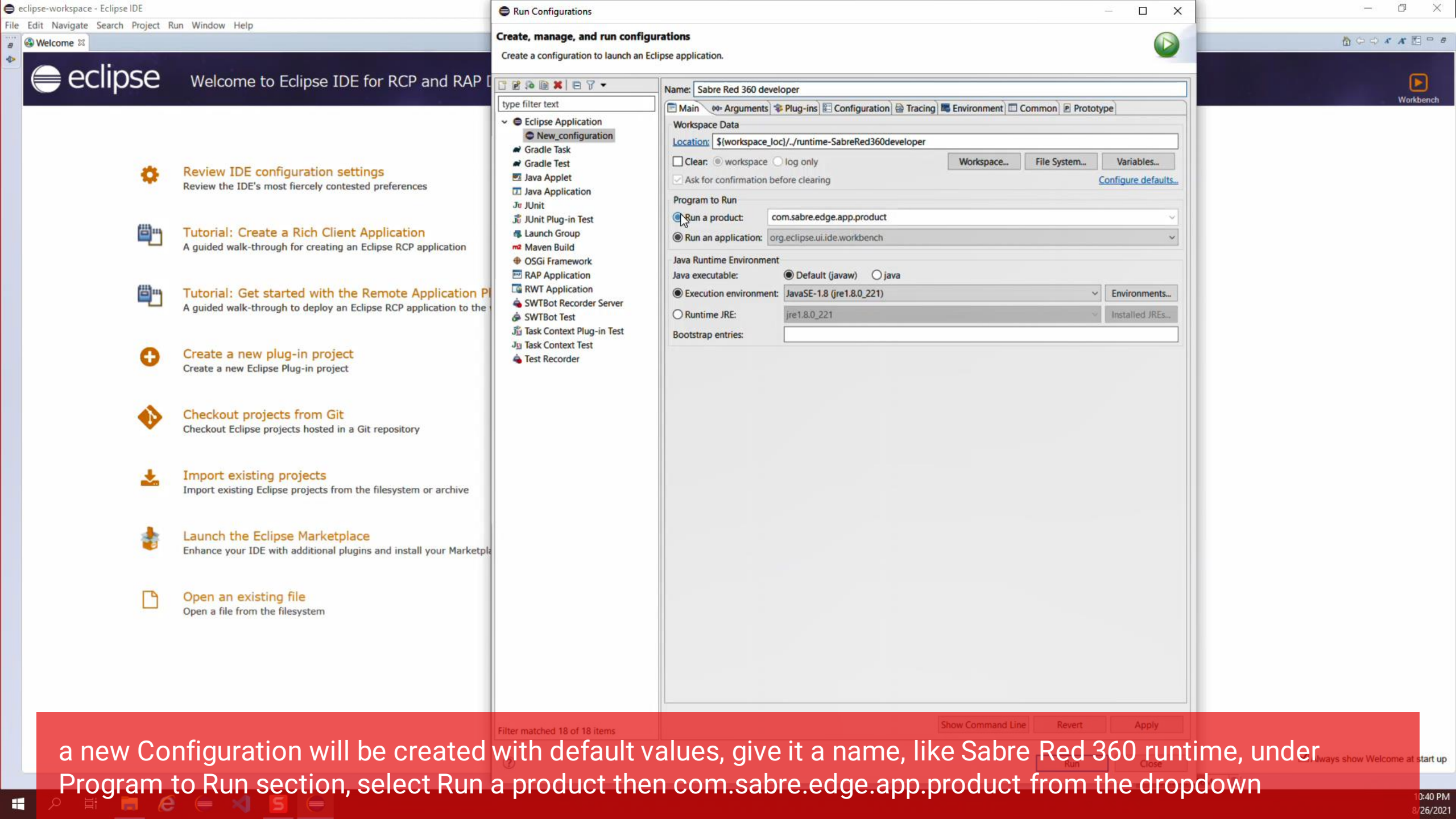


Select Eclipse Application from the available options, then hit the New icon on the toolbar

☒ Always show Welcome at start up

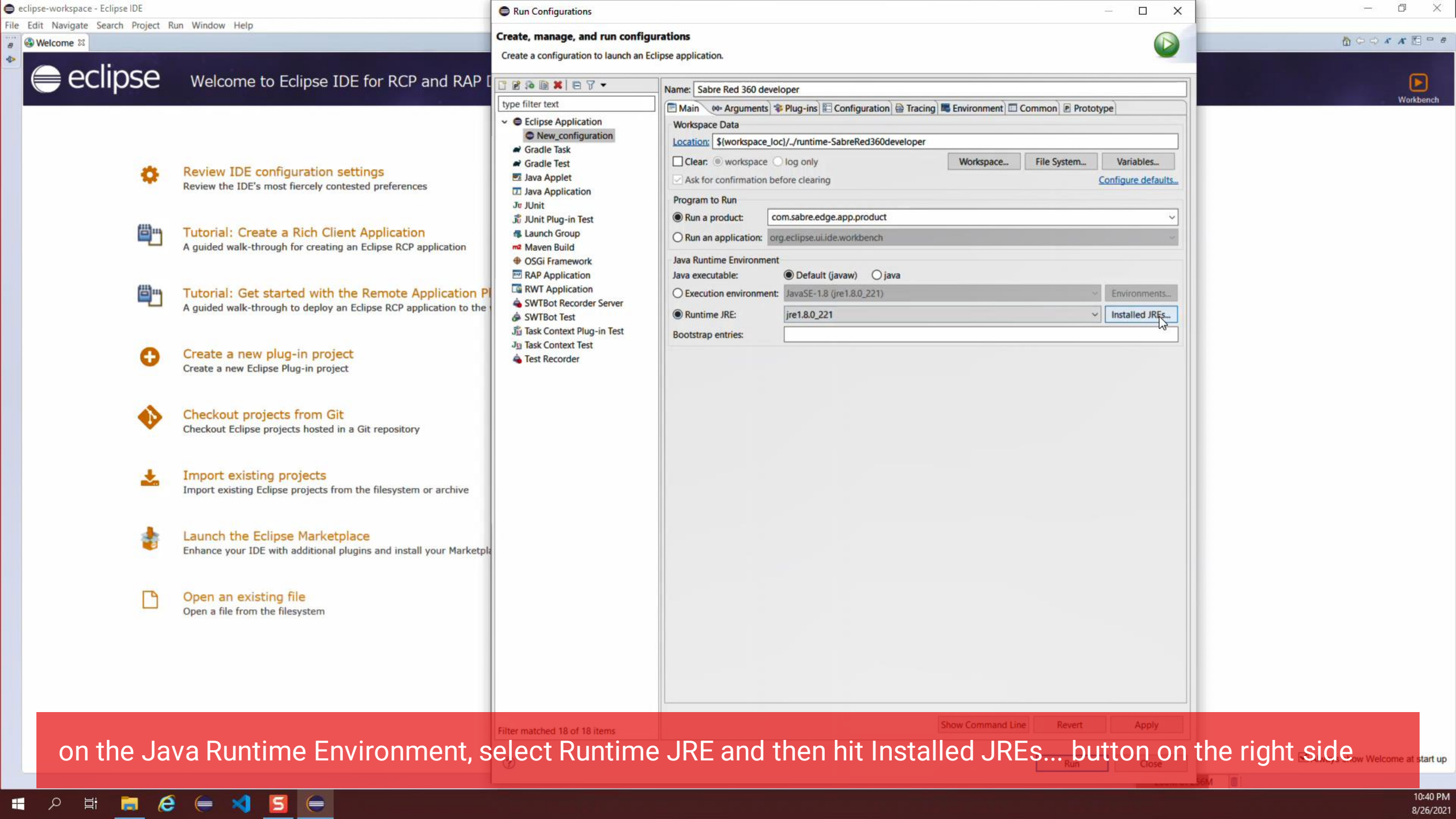
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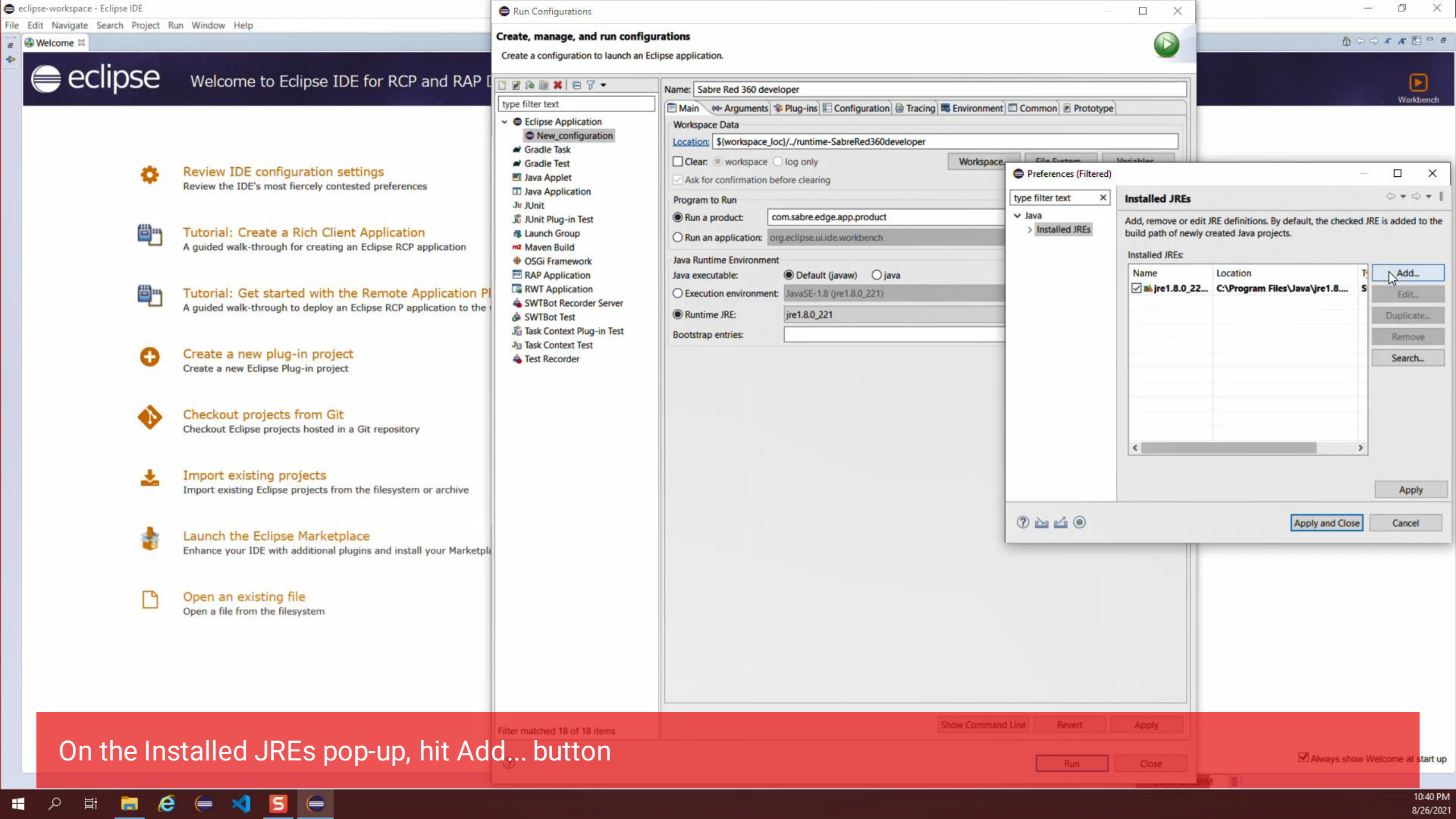


a new Configuration will be created with default values, give it a name, like Sabre Red 360 runtime, under Program to Run section, select Run a product then com.sabre.edge.app.product from the dropdown

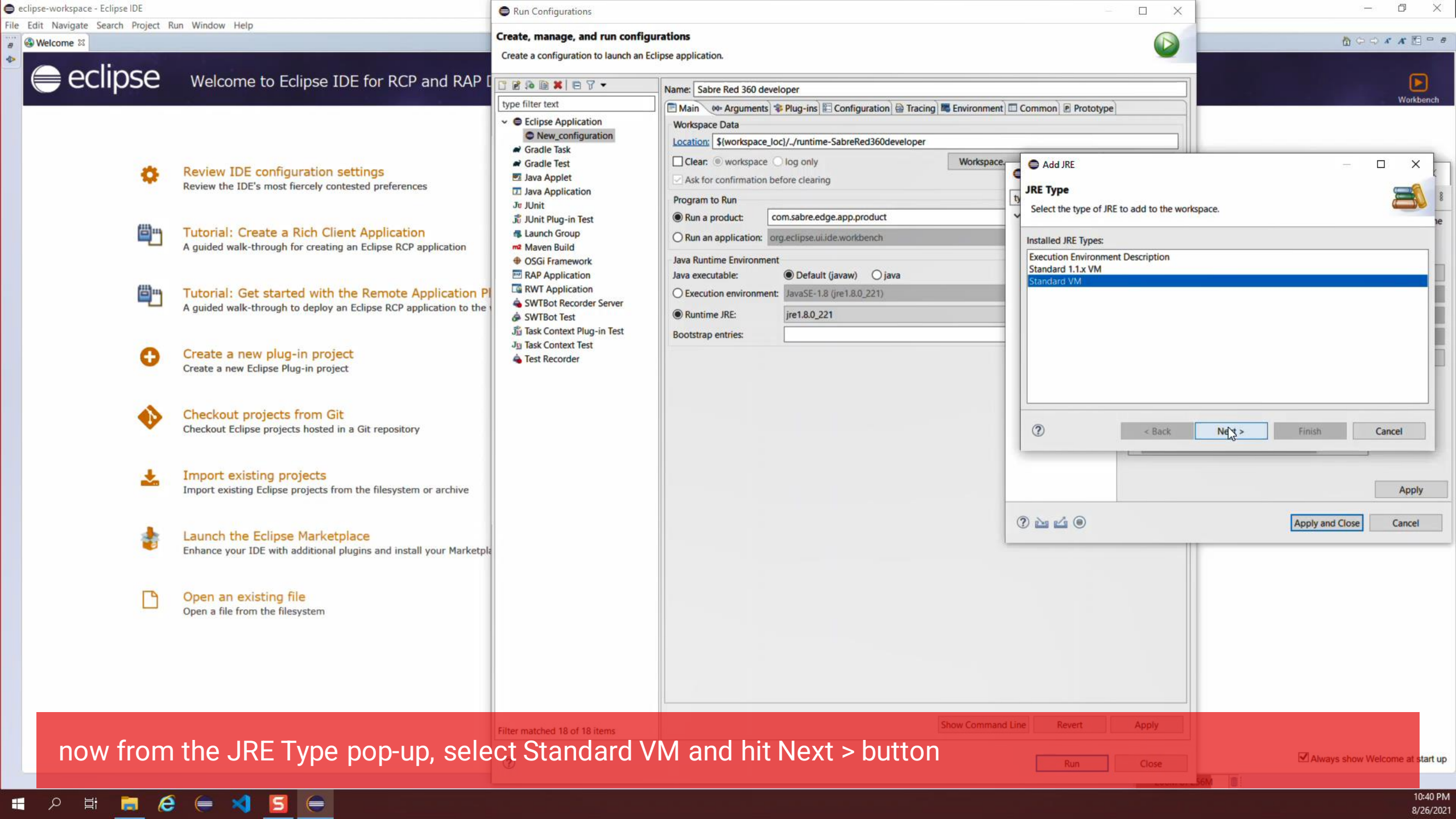




on the Java Runtime Environment, select Runtime JRE and then hit Installed JREs... button on the right side

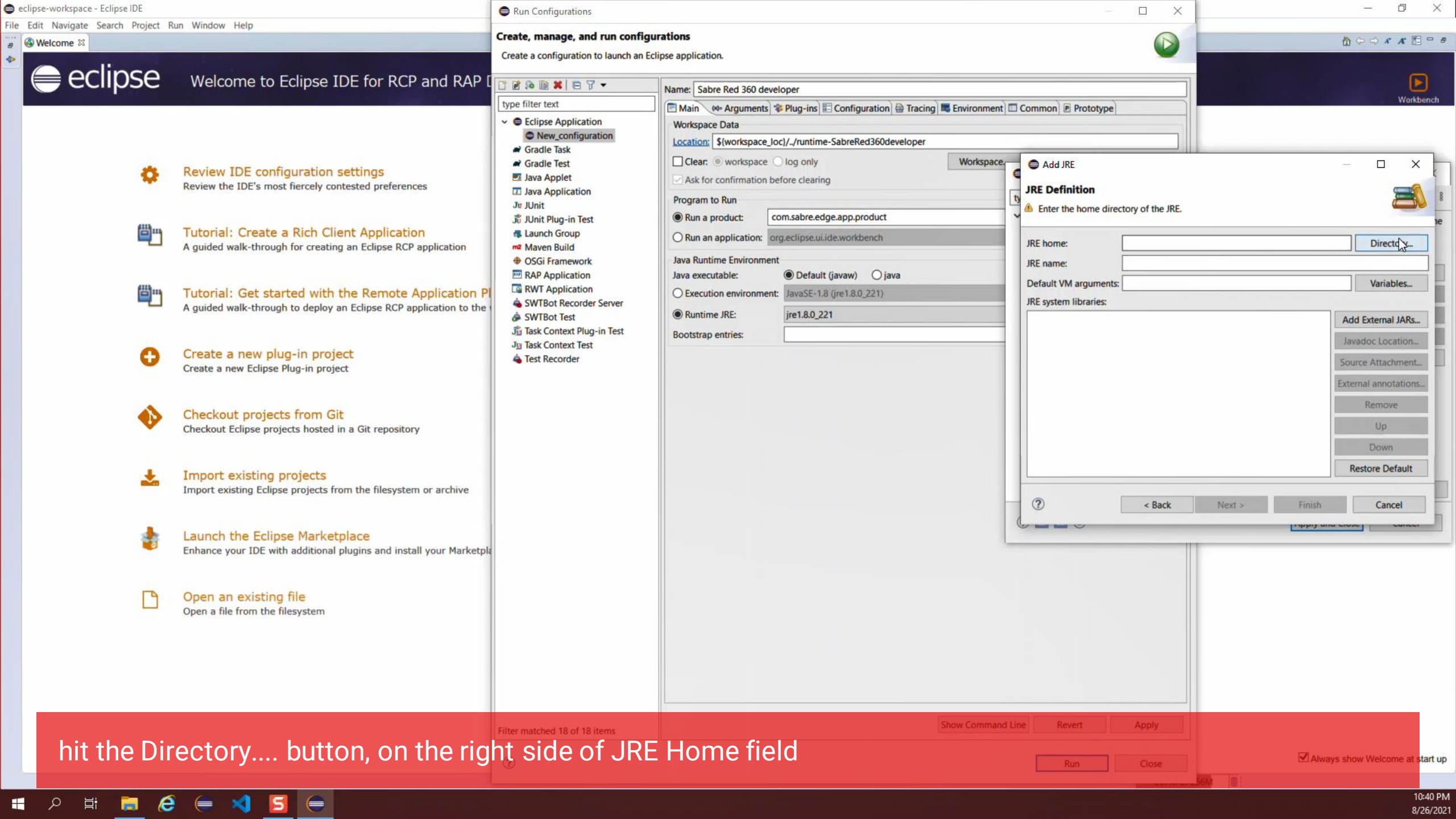


On the Installed JREs pop-up, hit Add... button

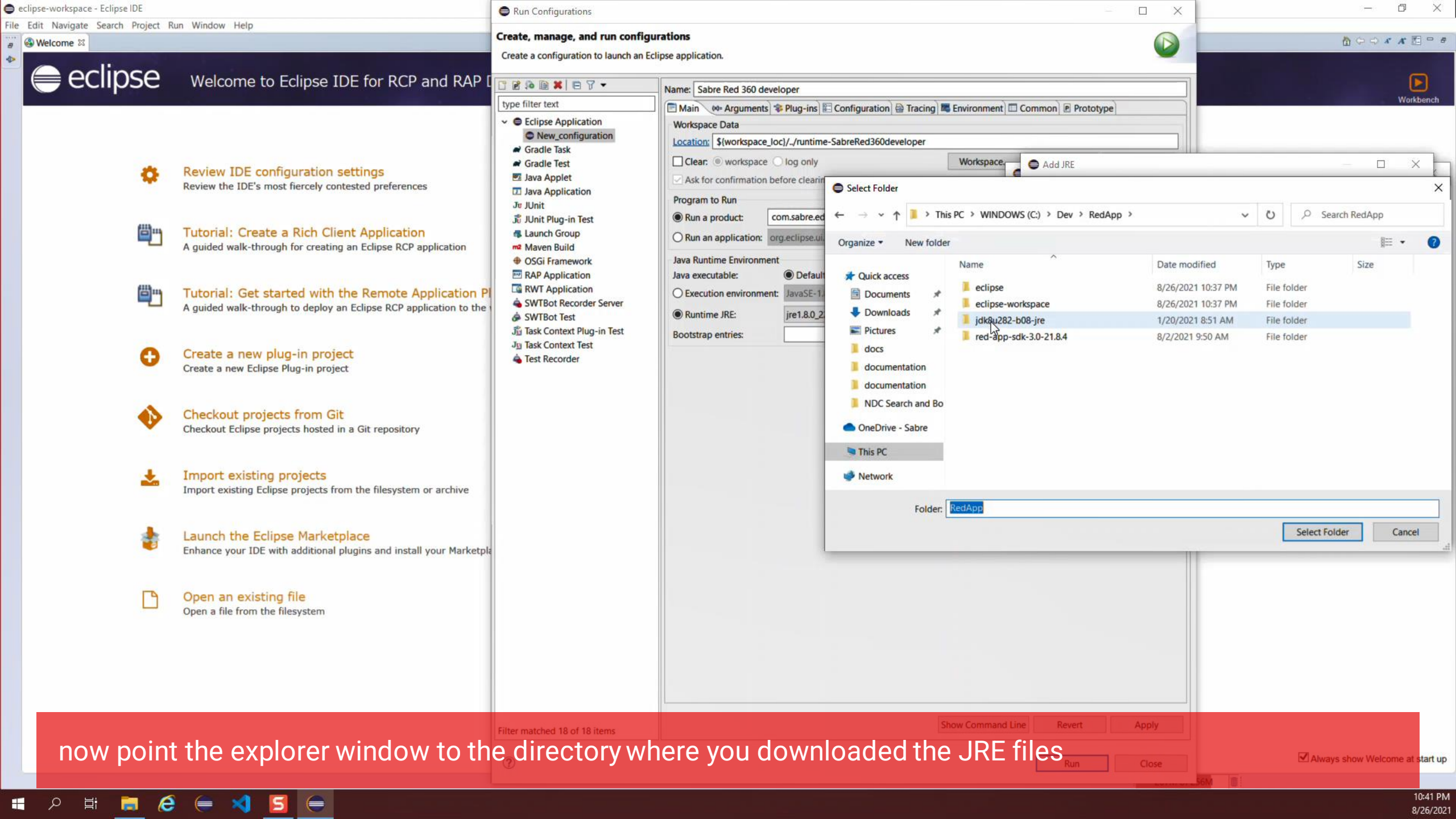


now from the JRE Type pop-up, select Standard VM and hit Next > button



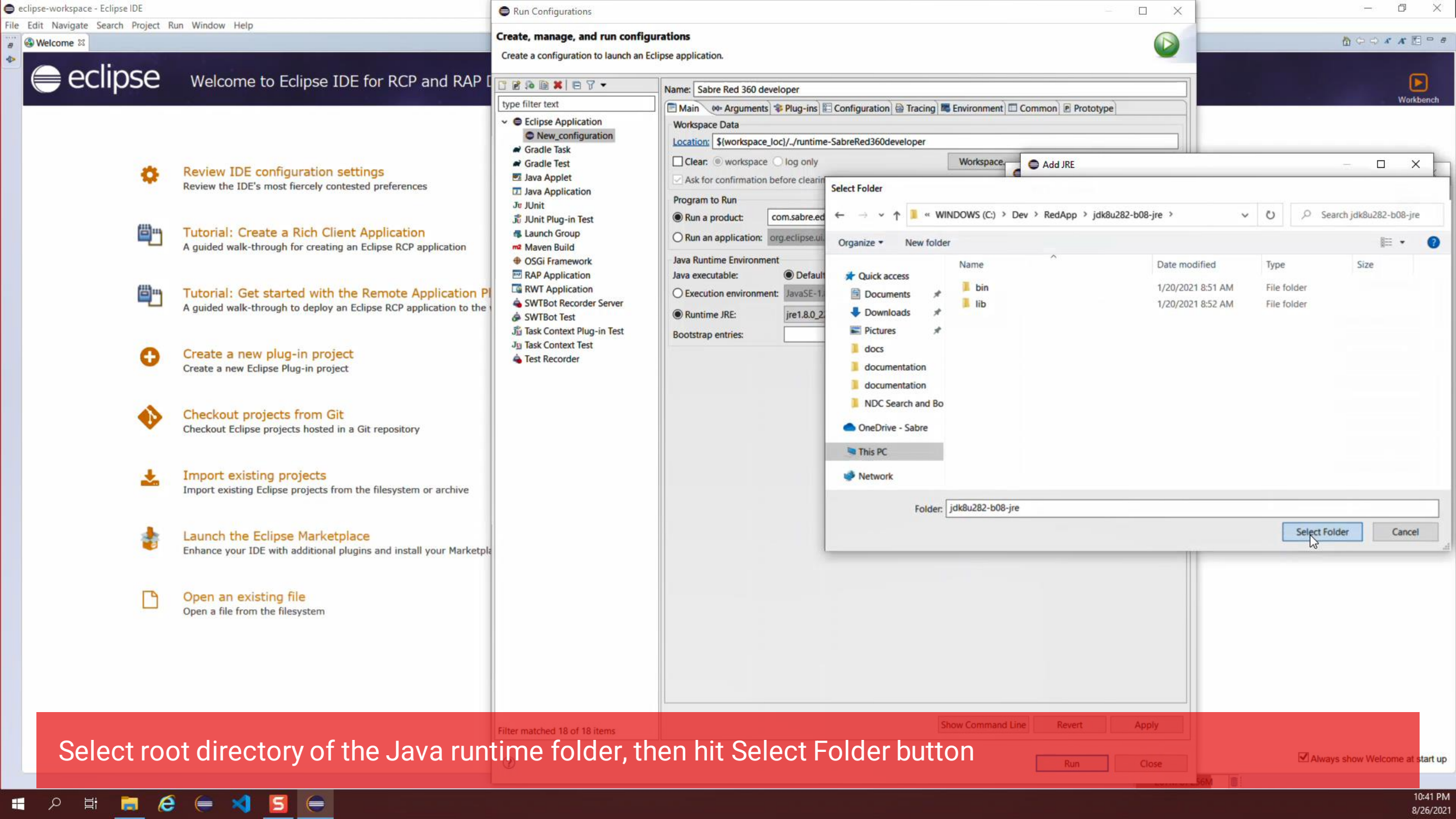


hit the Directory.... button, on the right side of JRE Home field

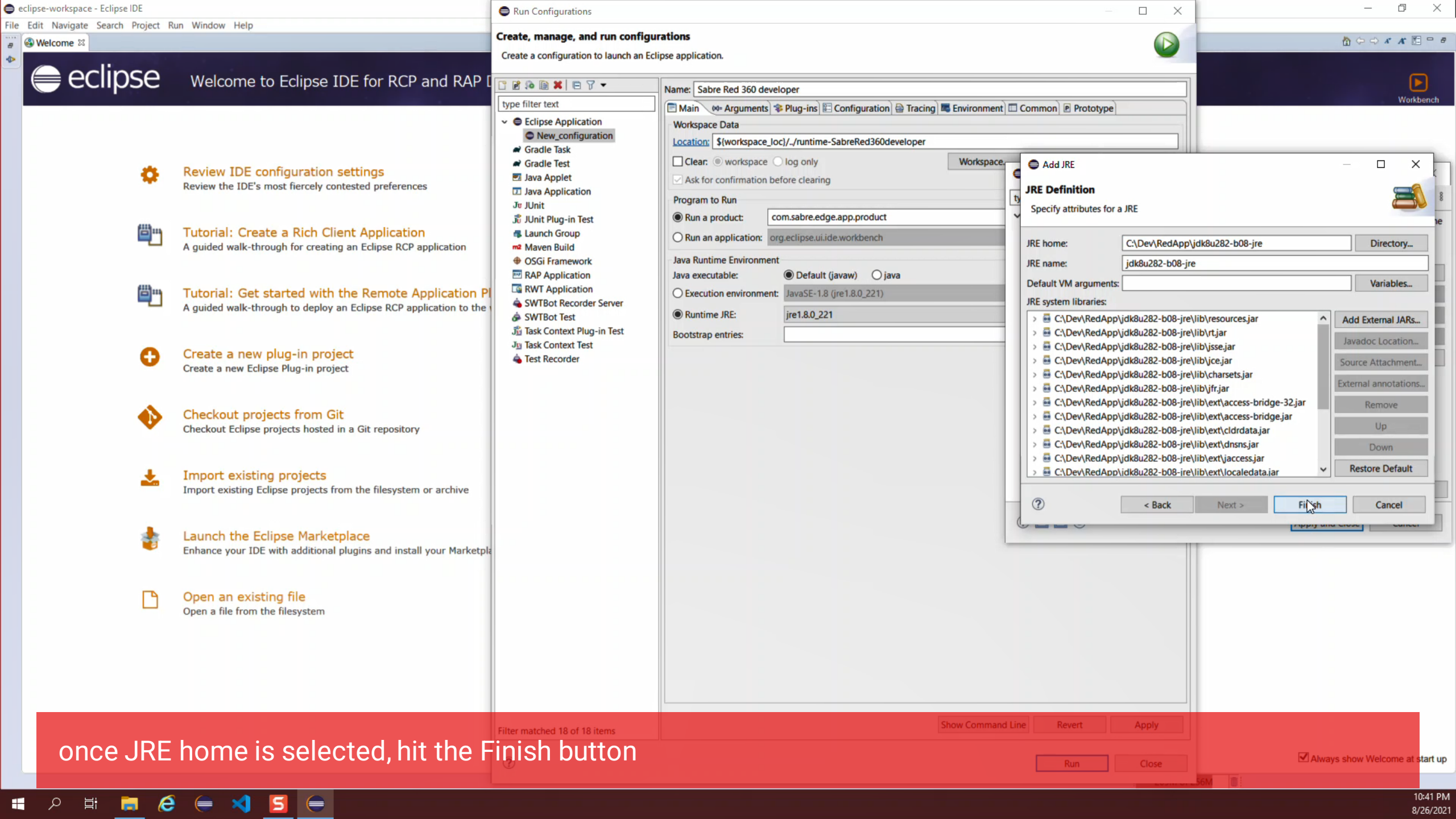


now point the explorer window to the directory where you downloaded the JRE files

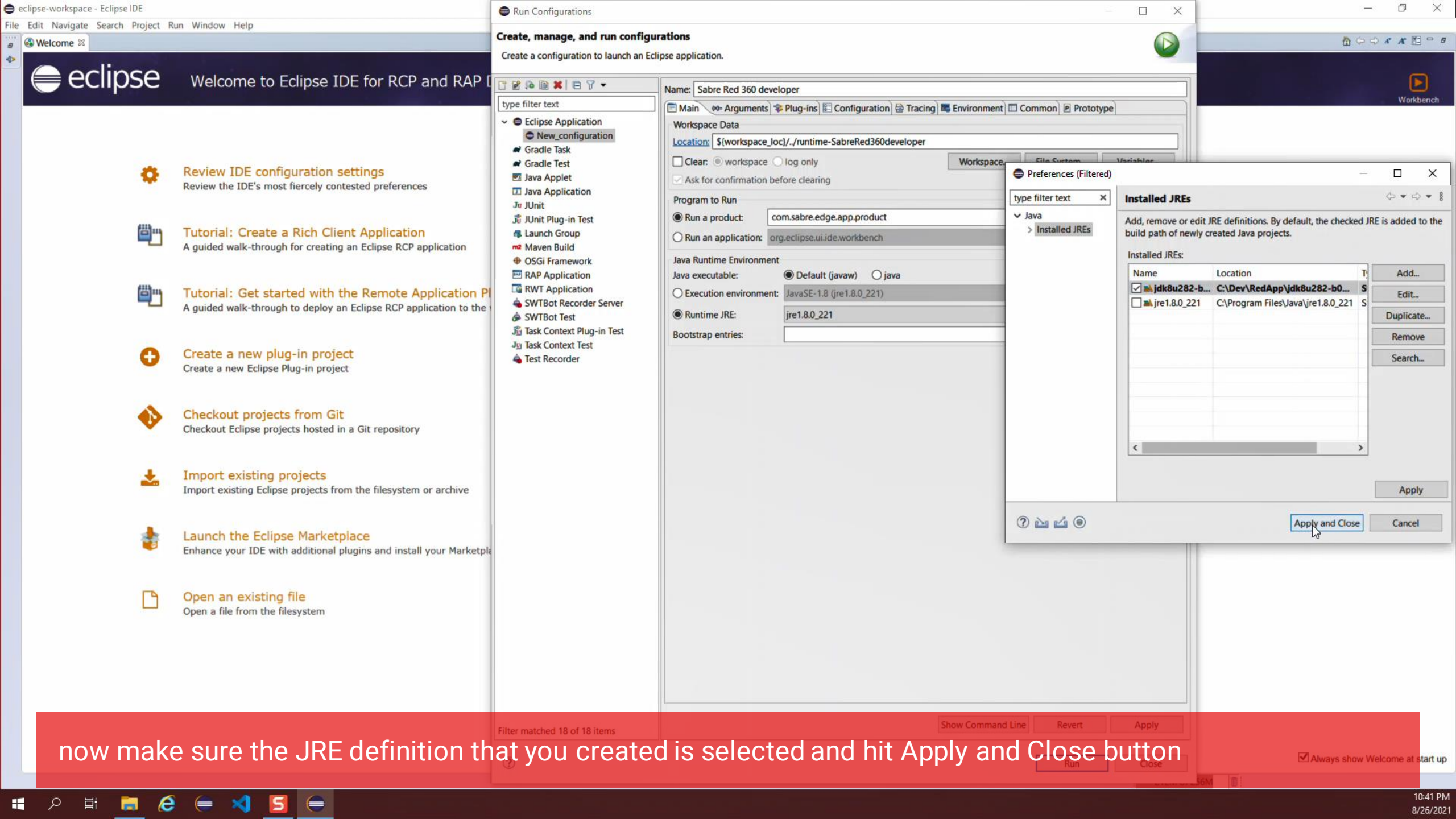




Select root directory of the Java runtime folder, then hit Select Folder button

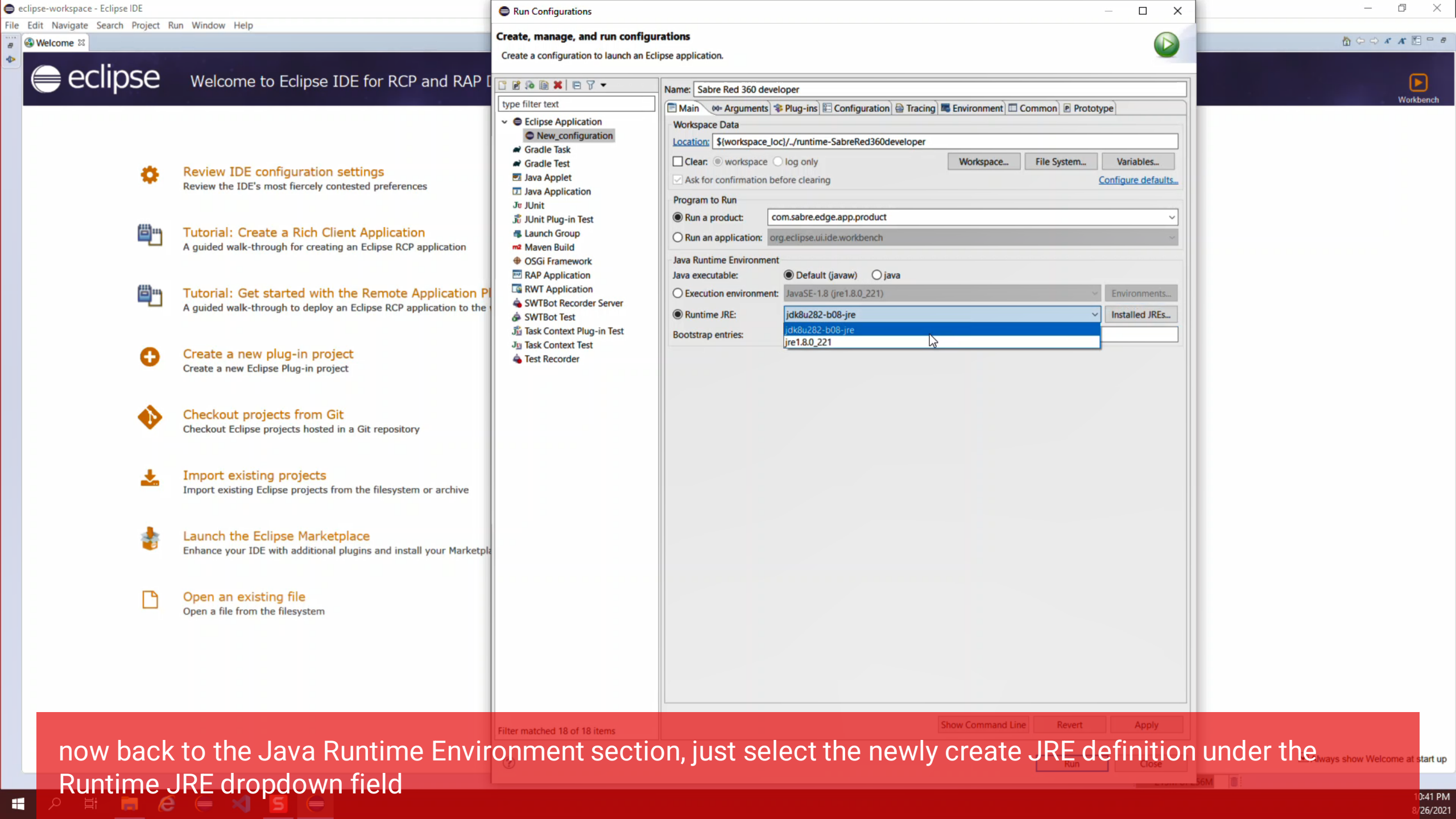


once JRE home is selected, hit the Finish button



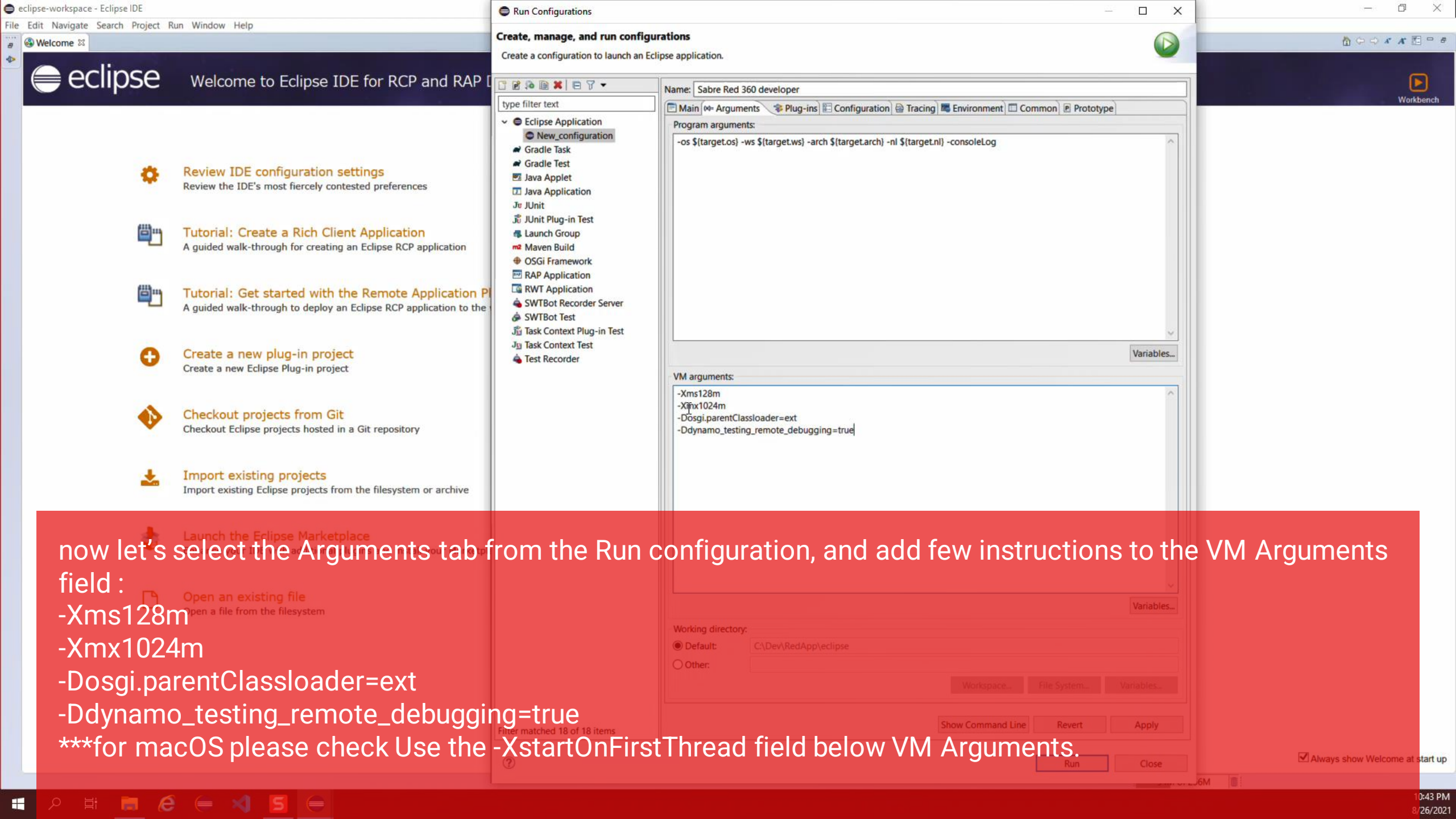
now make sure the JRE definition that you created is selected and hit Apply and Close button





now back to the Java Runtime Environment section, just select the newly create JRE definition under the Runtime JRE dropdown field

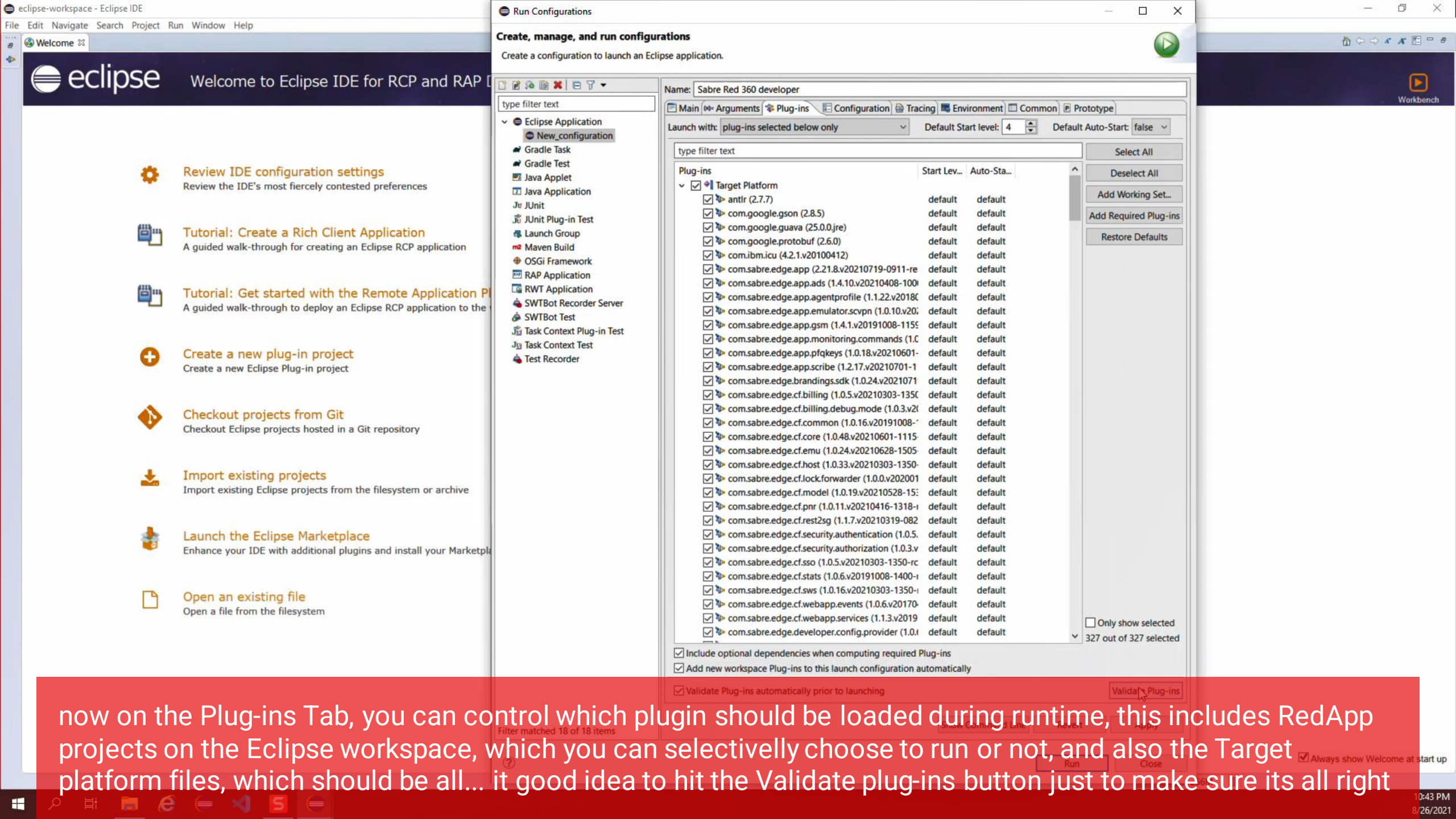




now let's select the Arguments tab from the Run configuration, and add few instructions to the VM Arguments field :

```
-Xms128m  
-Xmx1024m  
-Dosgi.parentClassloader=ext  
-Ddynamo_testing_remote_debugging=true
```

\*\*\*for macOS please check Use the -XstartOnFirstThread field below VM Arguments.



## Create, manage, and run configurations

Create a configuration to launch an Eclipse application.

Name: Sabre Red 360 developer

Launch with: plug-ins selected below only Default Start level: 4 Default Auto-Start: false

type filter text

Plug-ins	Start Lev...	Auto-Sta...
<input checked="" type="checkbox"/> Target Platform		
<input checked="" type="checkbox"/> antlr (2.7.7)	default	default
<input checked="" type="checkbox"/> com.google.gson (2.8.5)	default	default
<input checked="" type="checkbox"/> com.google.guava (25.0.0.jre)	default	default
<input checked="" type="checkbox"/> com.google.protobuf (2.6.0)	default	default
<input checked="" type="checkbox"/> com.ibm.icu (4.2.1.v20100412)	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app (2.21.8.v20210719-0911-re	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.ads (1.4.10.v20210408-100i	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.agentprofile (1.1.22.v2018	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.emulator.scvnp (1.0.10.v20	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.gsm (1.4.1.v20191008-115	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.monitoring.commands (1.0	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.pfkeys (1.0.18.v20210601-	default	default
<input checked="" type="checkbox"/> com.sabre.edge.app.scribe (1.2.17.v20210701-1	default	default
<input checked="" type="checkbox"/> com.sabre.edge.brandings.sdk (1.0.24.v2021071	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.billing (1.0.5.v20210303-135	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.billing.debug.mode (1.0.3.v2	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.common (1.0.16.v20191008-	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.core (1.0.48.v20210601-1115	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.emu (1.0.24.v20210628-1505	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.host (1.0.33.v20210303-1350-	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.lock.forwarder (1.0.0.v202001	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.model (1.0.19.v20210528-15:	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.pnr (1.0.11.v20210416-1318-i	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.rest2sg (1.1.7.v20210319-082	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.security.authentication (1.0.5.	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.security.authorization (1.0.3.v	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.sso (1.0.5.v20210303-1350-rc	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.stats (1.0.6.v20191008-1400-i	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.sws (1.0.16.v20210303-1350-i	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.webapp.events (1.0.6.v20170-	default	default
<input checked="" type="checkbox"/> com.sabre.edge.cf.webapp.services (1.1.3.v2019	default	default
<input checked="" type="checkbox"/> com.sabre.edge.developer.config.provider (1.0.i	default	default

☒ Include optional dependencies when computing required Plug-ins

☒ Add new workspace Plug-ins to this launch configuration automatically

☒ Validate Plug-ins automatically prior to launching

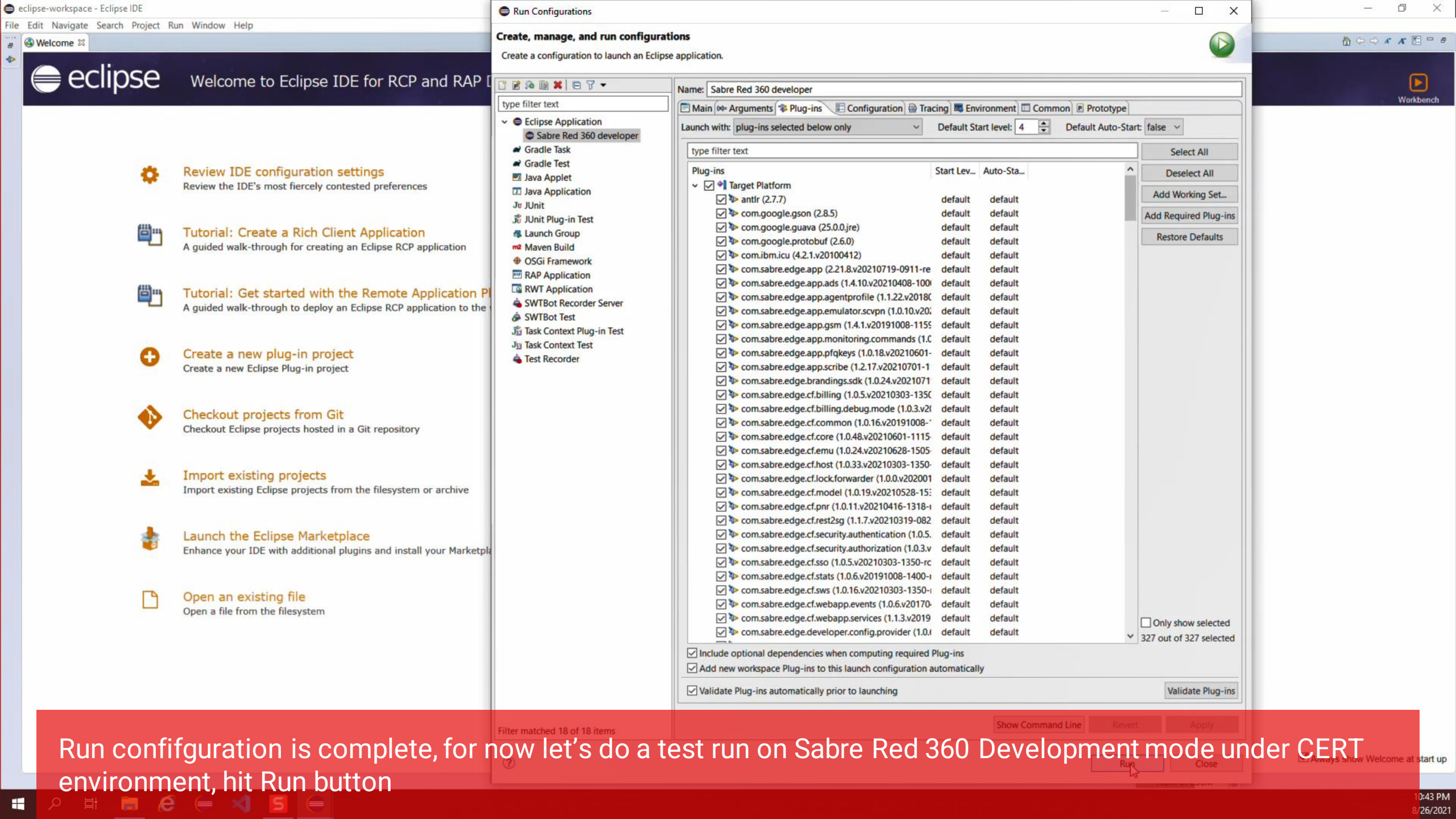
Filter matched 18 of 18 items

327 out of 327 selected

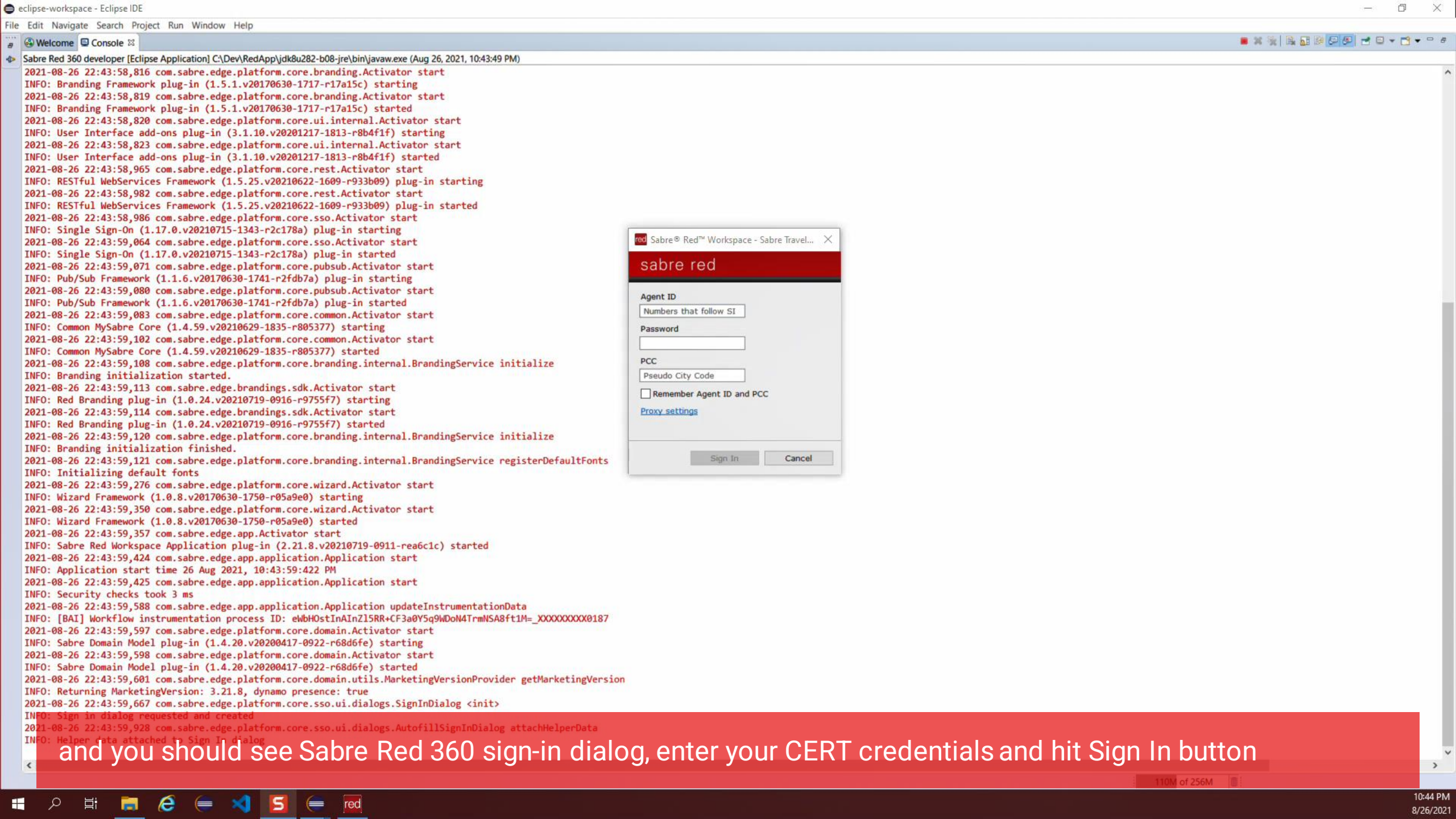
Validate Plug-ins

now on the Plug-ins Tab, you can control which plugin should be loaded during runtime, this includes RedApp projects on the Eclipse workspace, which you can selectively choose to run or not, and also the Target platform files, which should be all... it good idea to hit the Validate plug-ins button just to make sure its all right



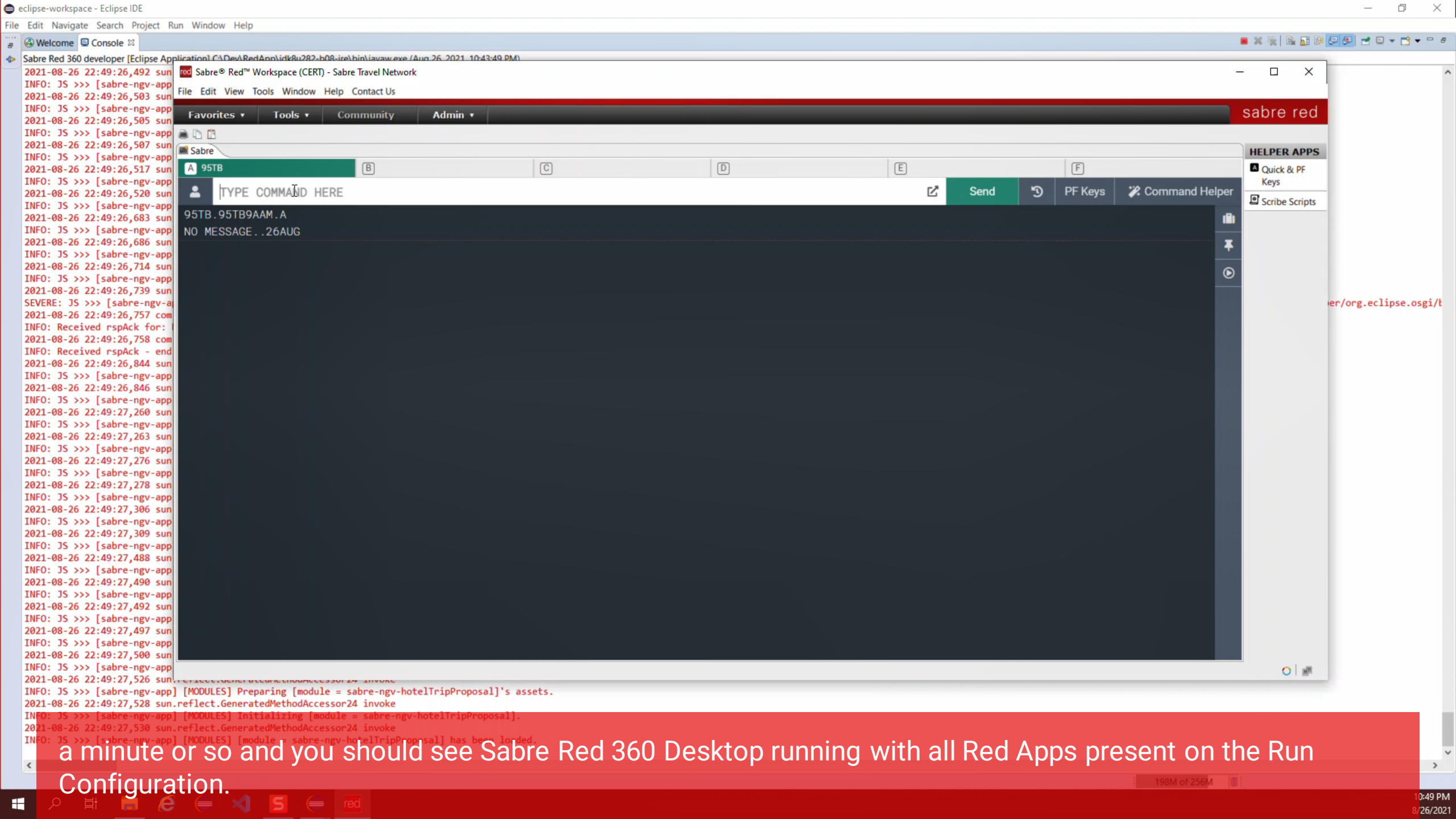


Run configuration is complete, for now let's do a test run on Sabre Red 360 Development mode under CERT environment, hit Run button

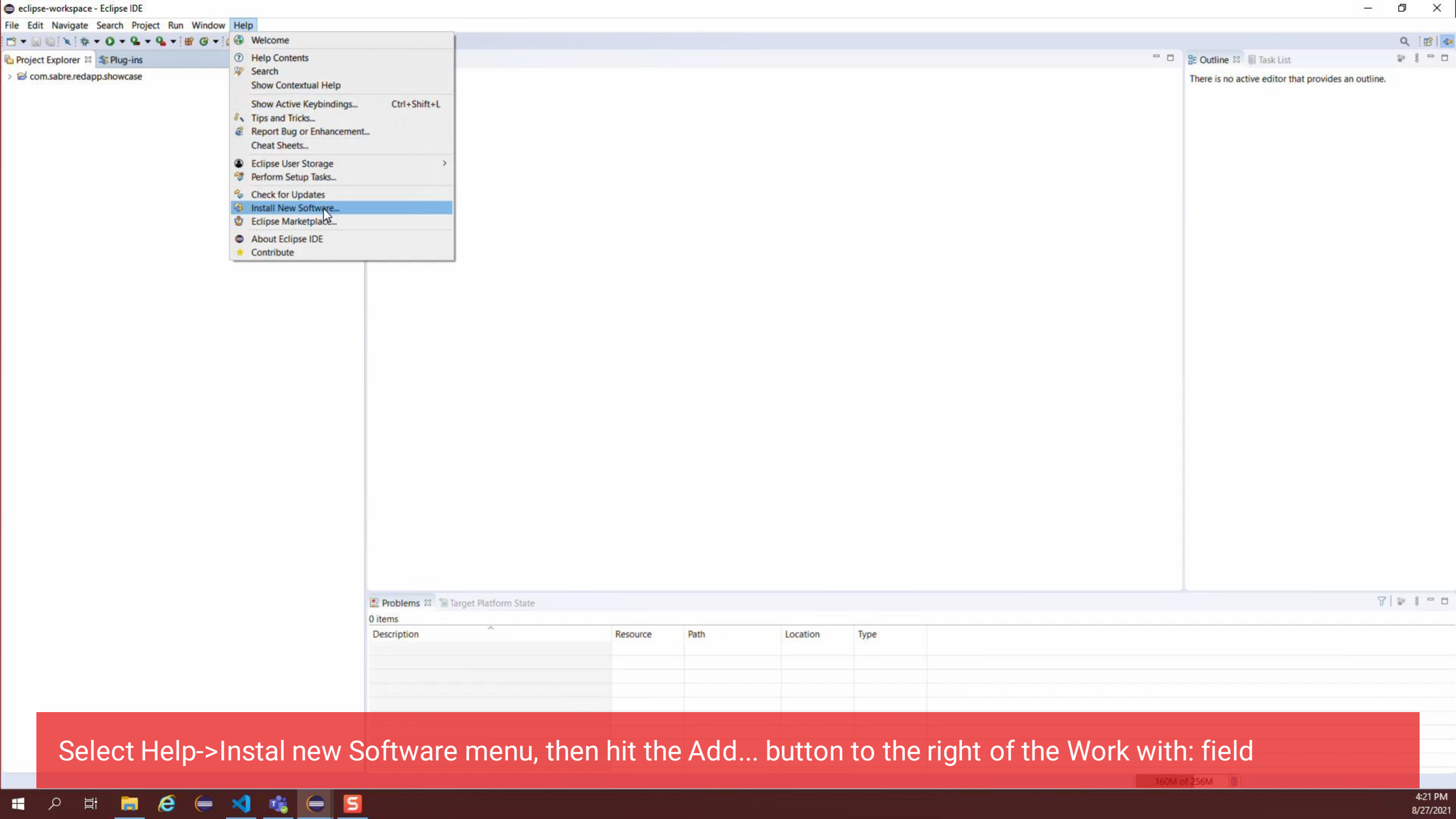


and you should see Sabre Red 360 sign-in dialog, enter your CERT credentials and hit Sign In button

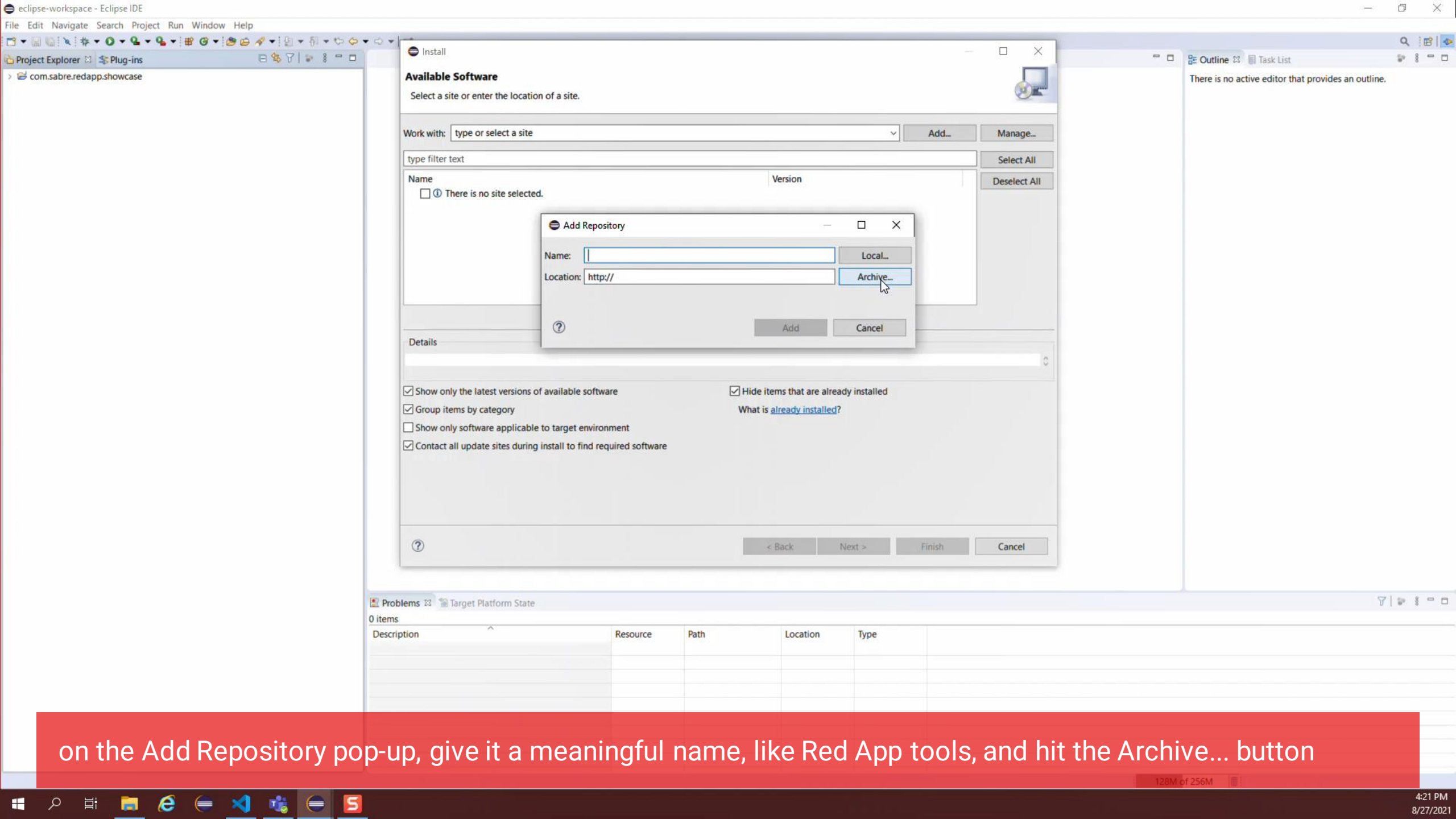




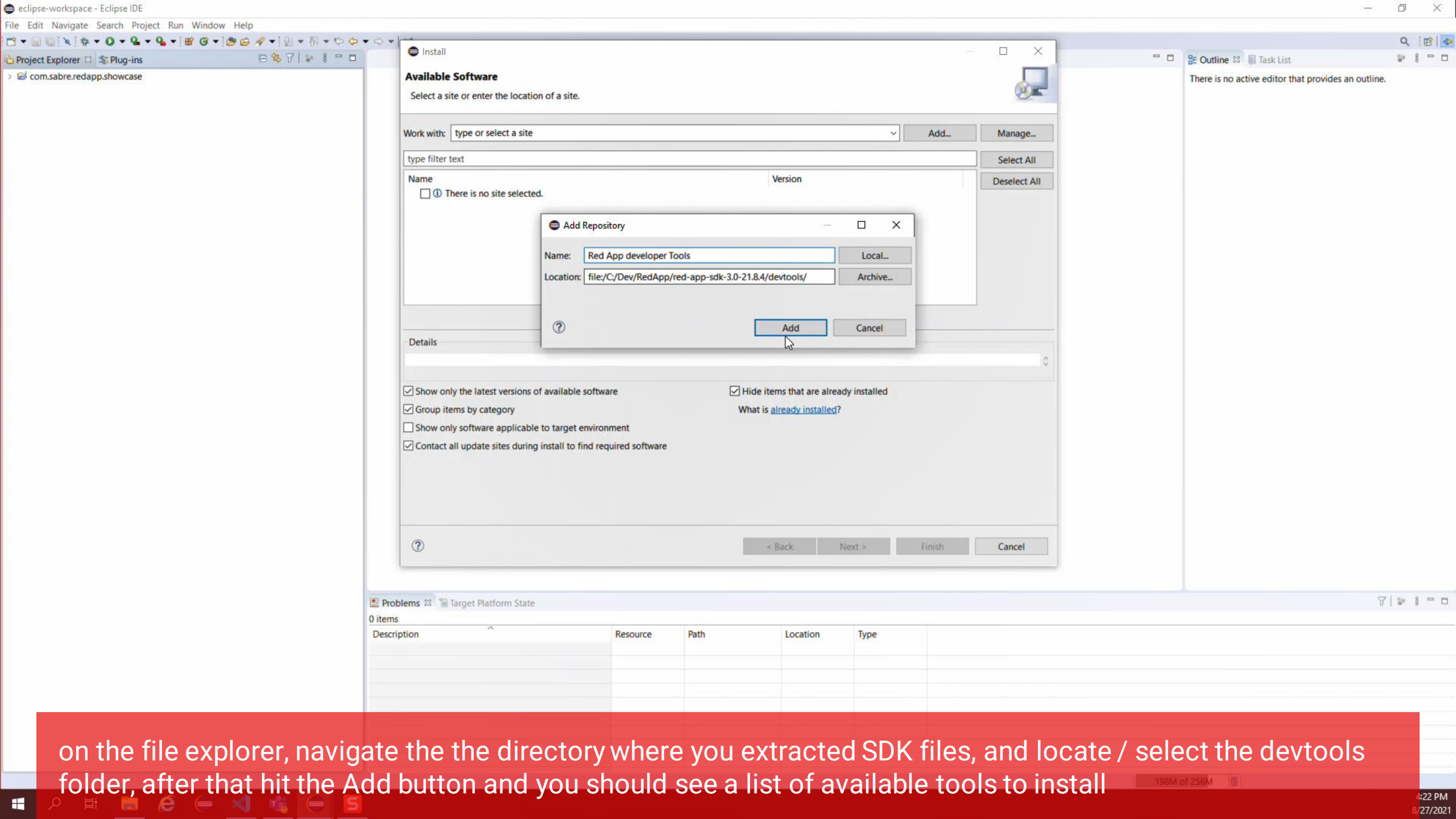
a minute or so and you should see Sabre Red 360 Desktop running with all Red Apps present on the Run Configuration.



Select Help->Instal new Software menu, then hit the Add... button to the right of the Work with: field



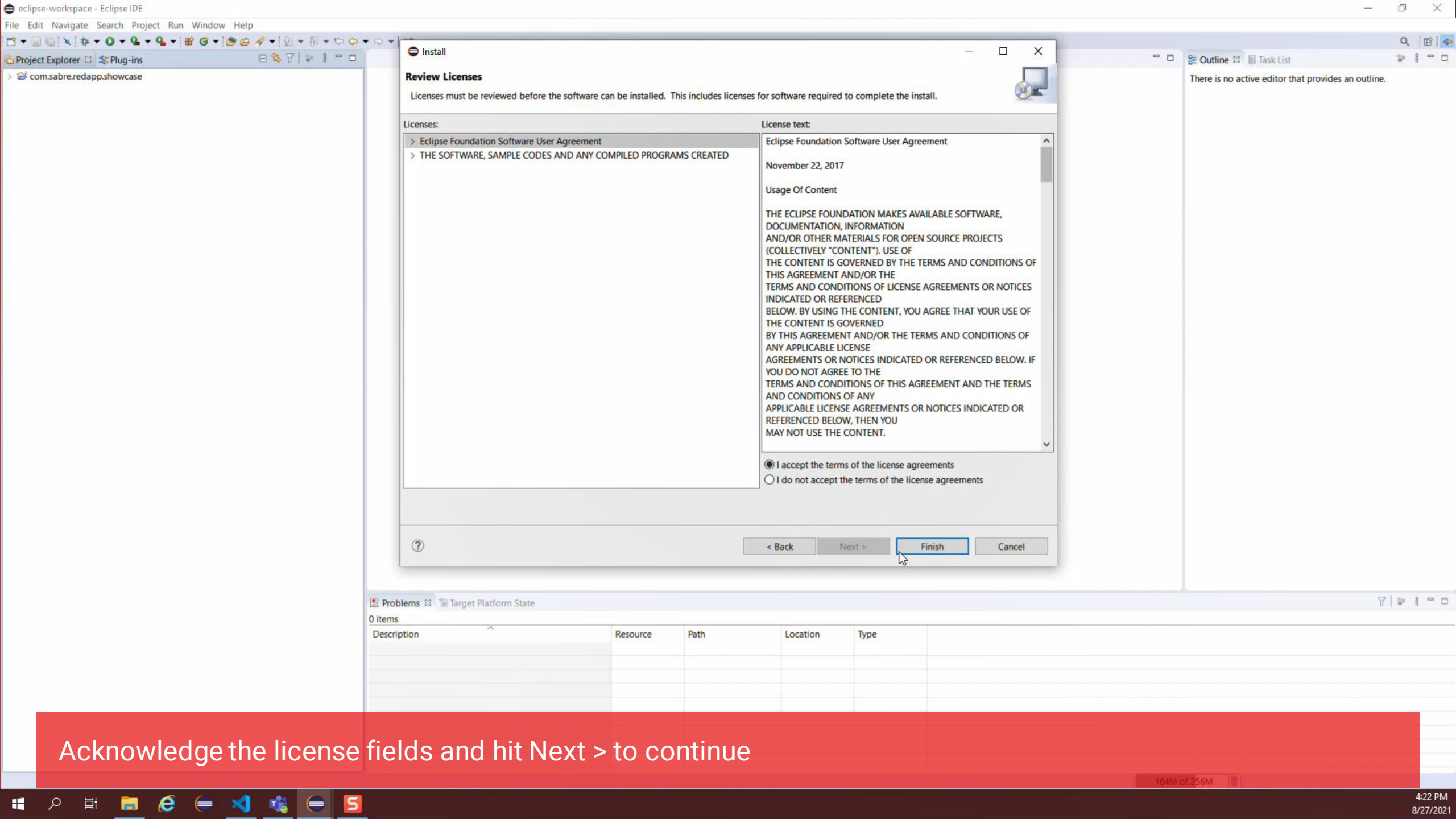
on the Add Repository pop-up, give it a meaningful name, like Red App tools, and hit the Archive... button



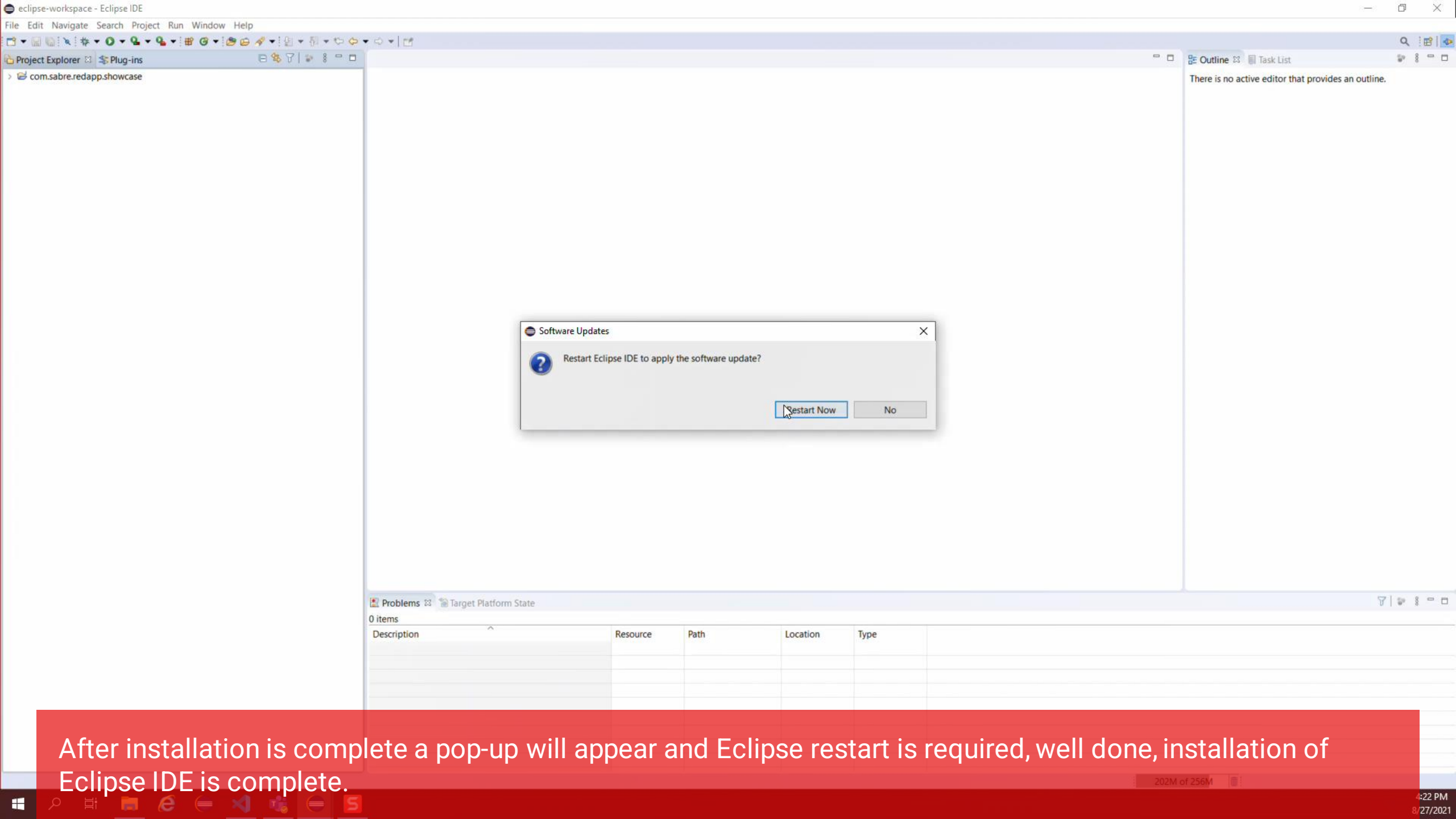
on the file explorer, navigate the the directory where you extracted SDK files, and locate / select the devtools folder, after that hit the Add button and you should see a list of available tools to install







Acknowledge the license fields and hit Next > to continue



After installation is complete a pop-up will appear and Eclipse restart is required, well done, installation of Eclipse IDE is complete.



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

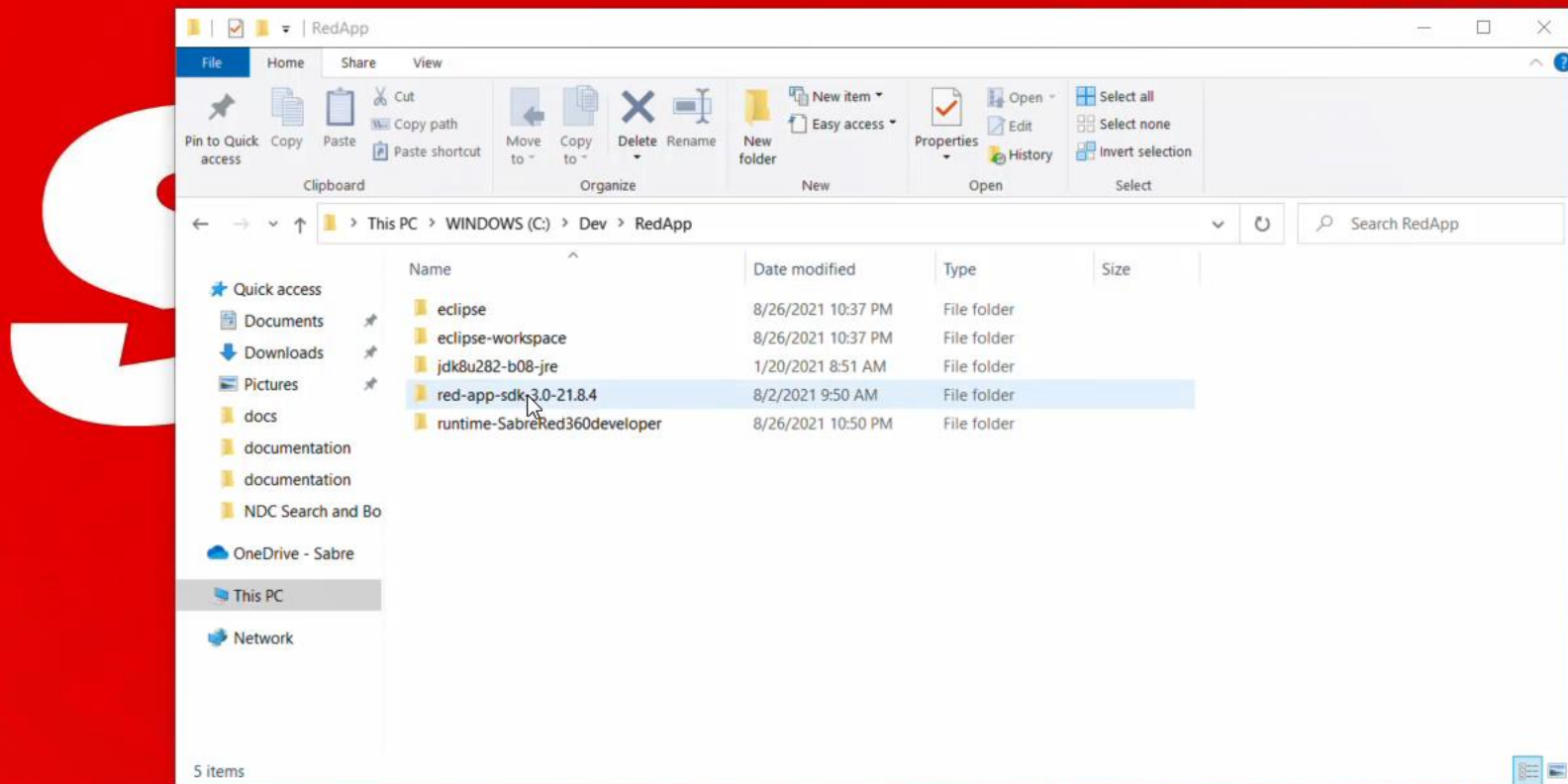
Setup Development Environment



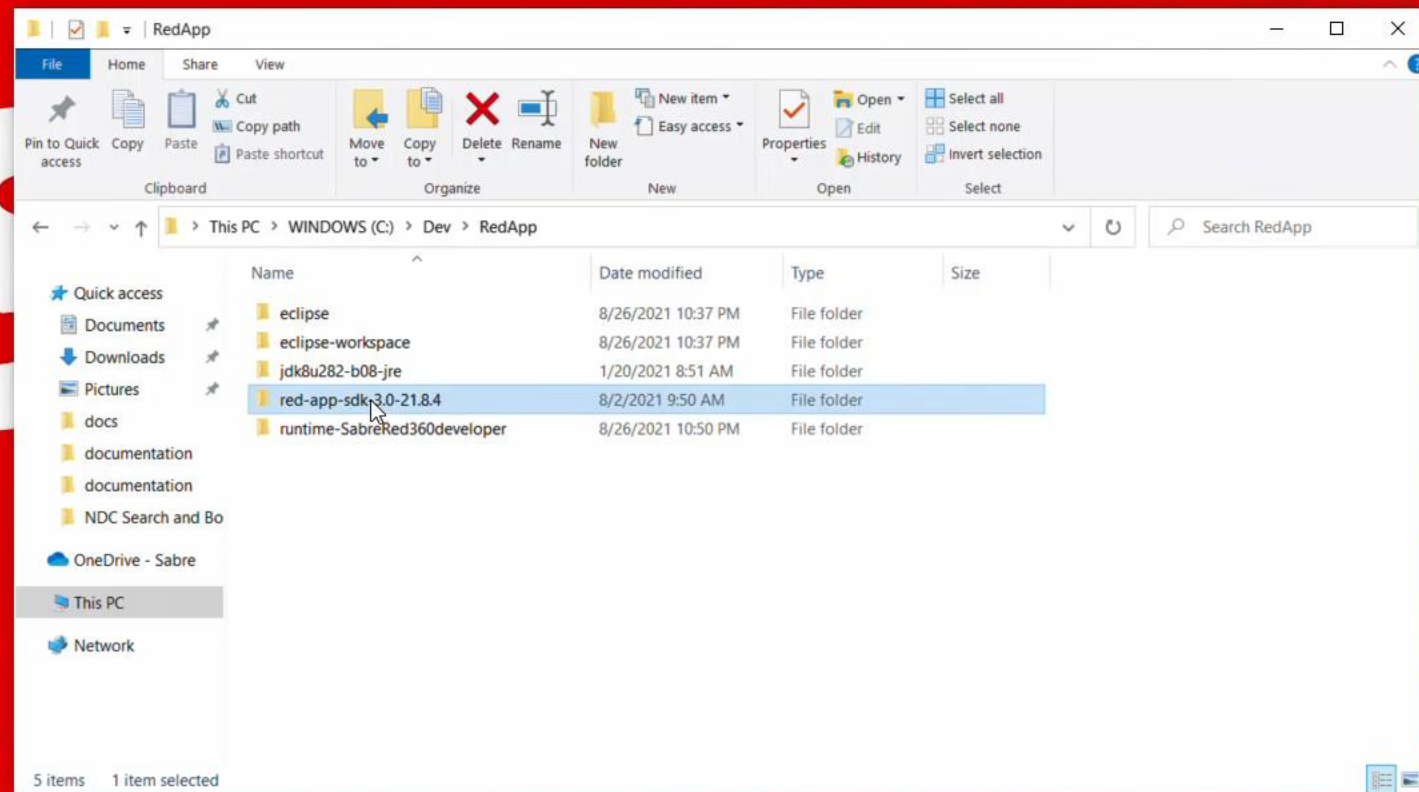
**Web SDK**, framework used to build Web Modules, or Web Red Apps, which are customizations that applies to Sabre Red 360 Next Generation View (NGV)

**Install or upgrade Sabre Concierge Tool**  
**install Web Development Tools (3<sup>rd</sup> party, optional)**

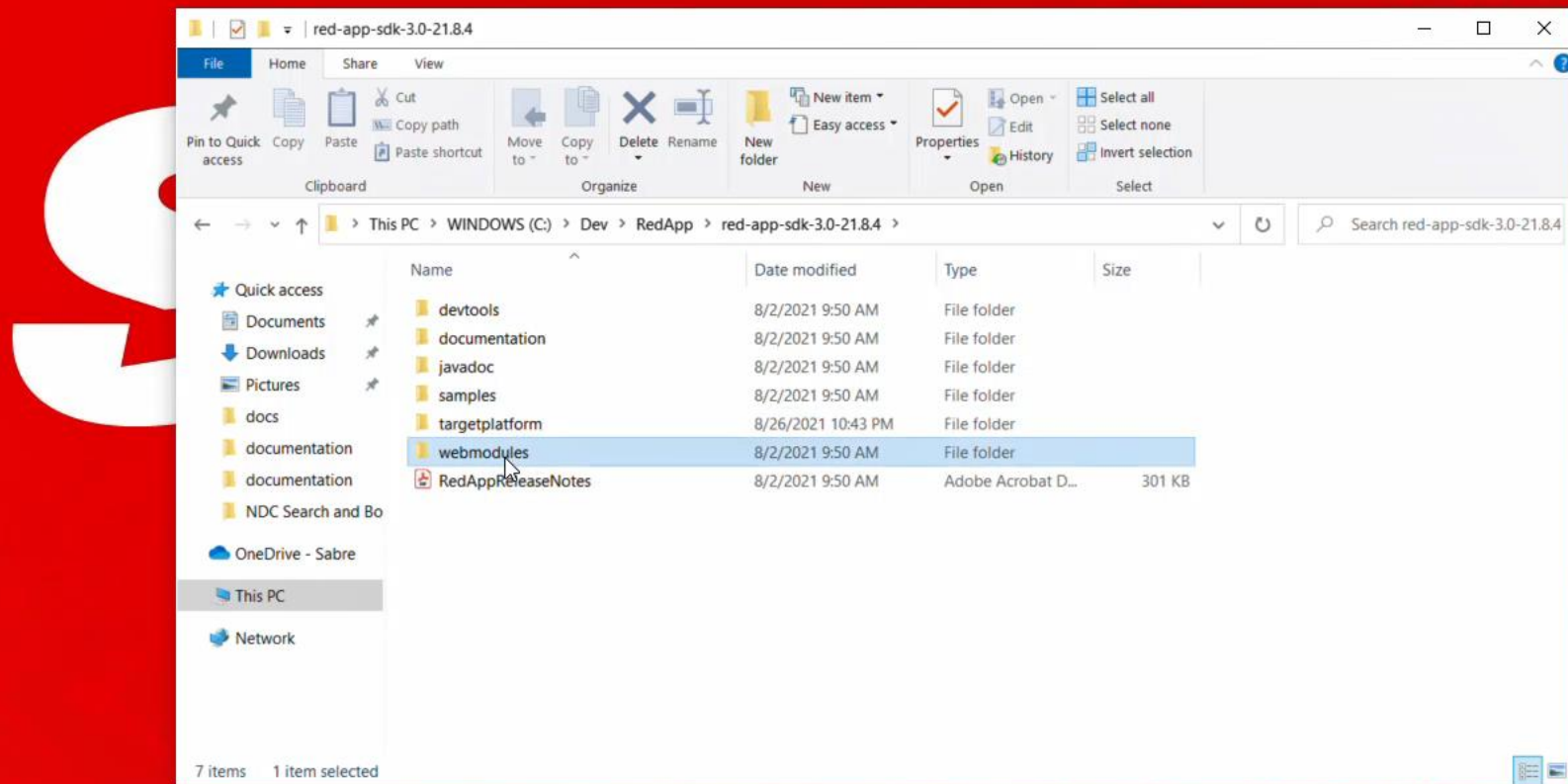




Locate the folder where you extracted SDK files

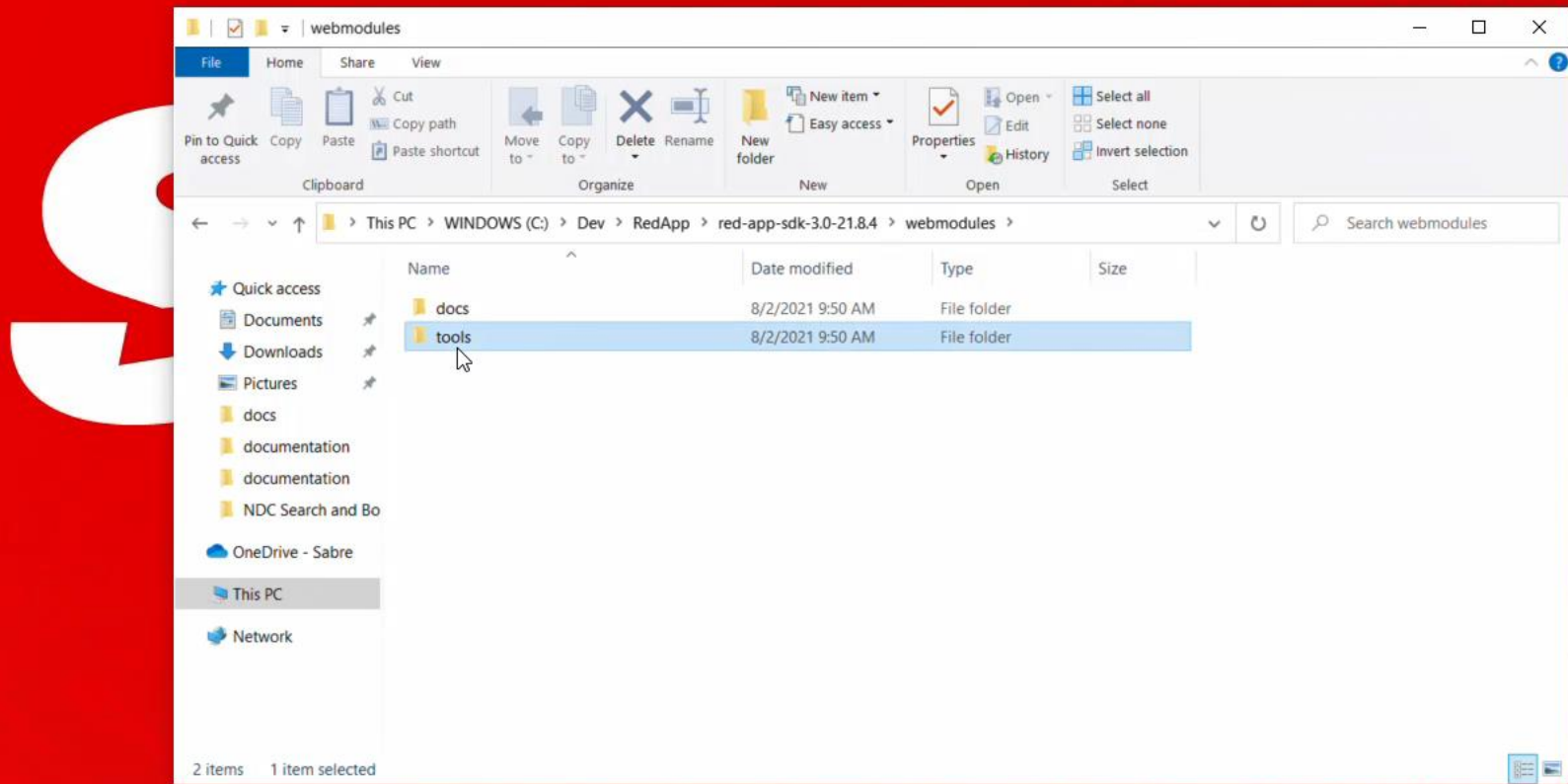


Open SDK main folder (named red-app-sdk[version])



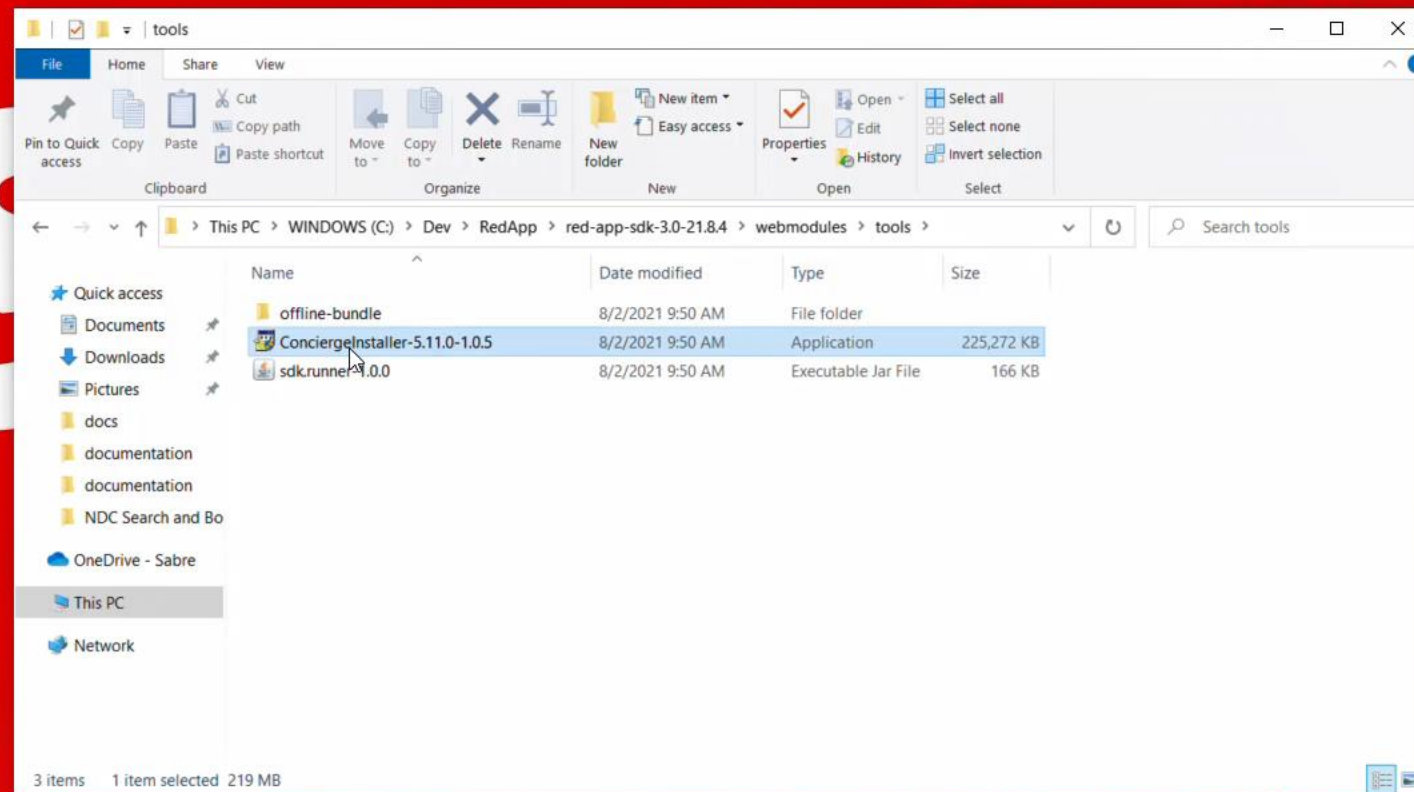
navigate to webmodules subfolder



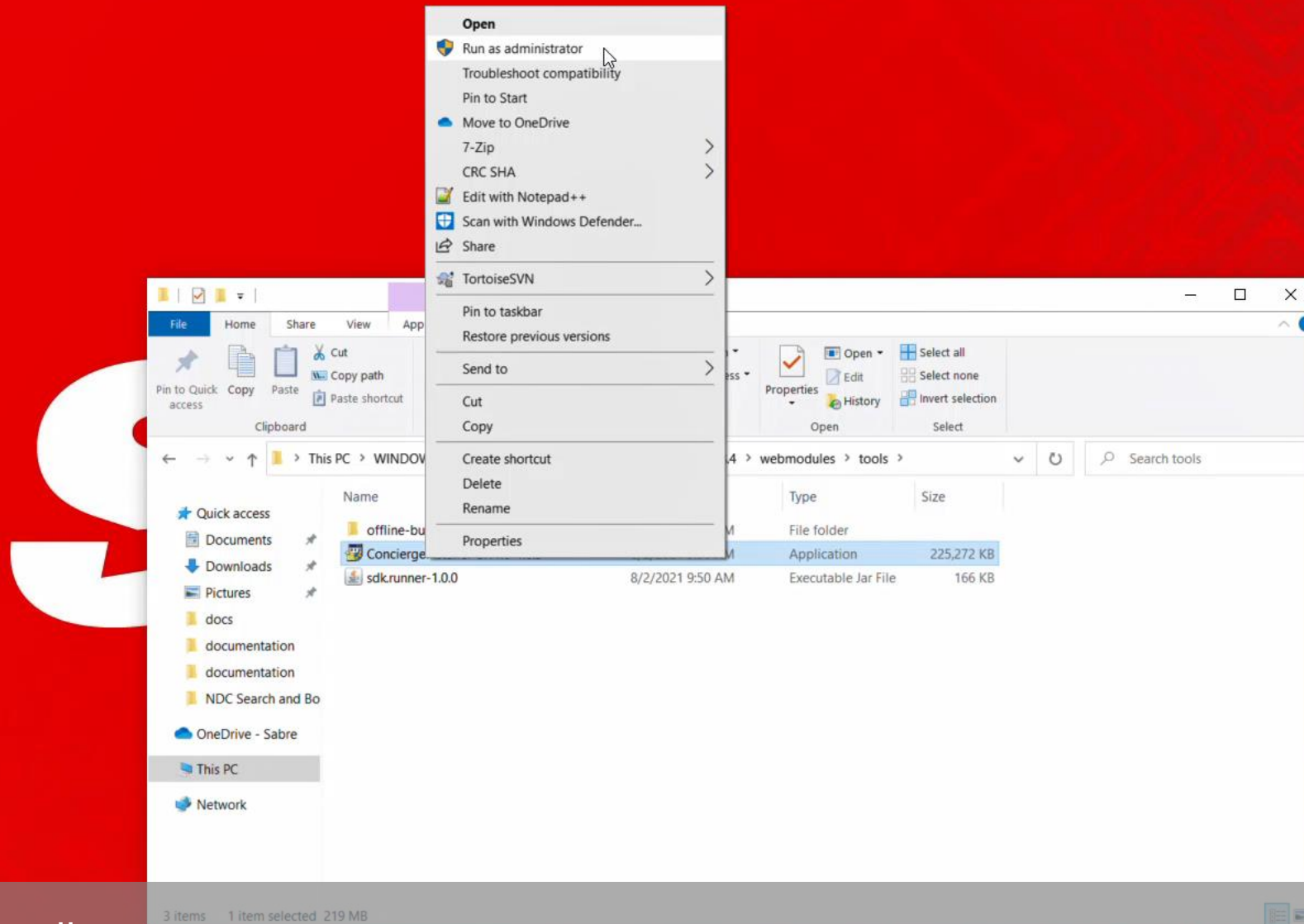


then tools



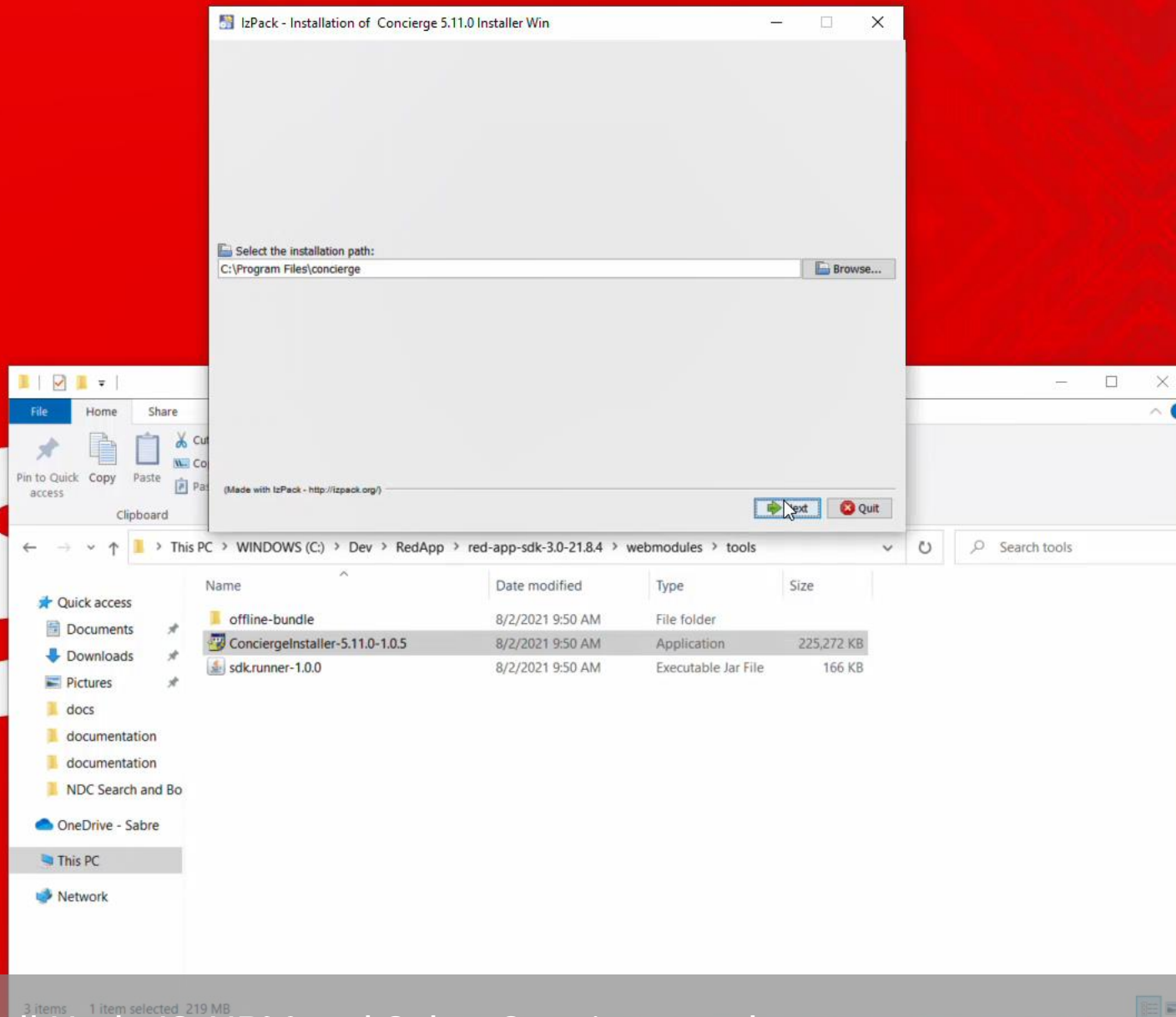


Locate the ConciergeInstaller executable (.jar file on macOS)



## Run Sabre Concierge installer

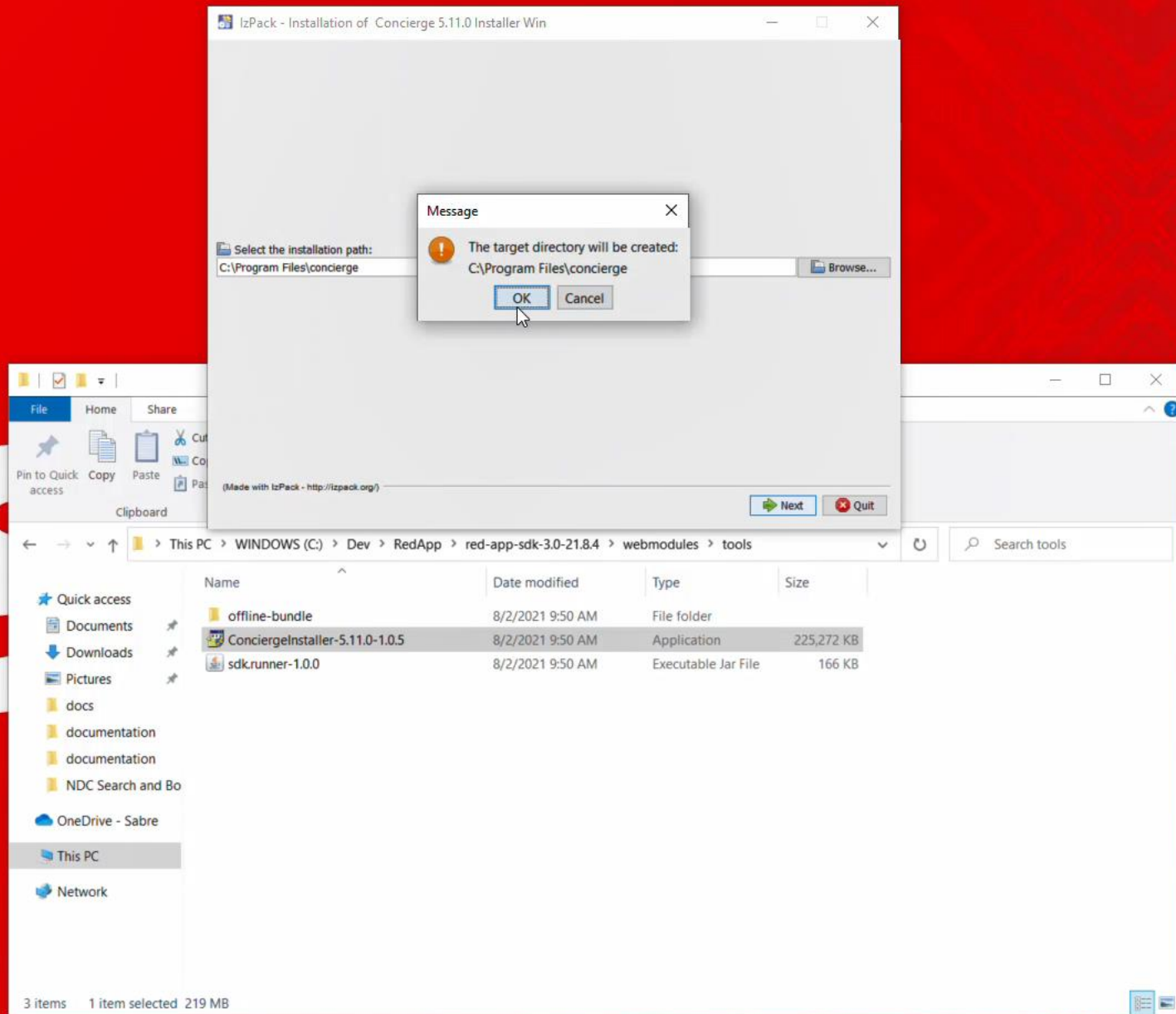
\*\*\* It's recommended to run installer with Administrator rights, given it needs permission to create symbolic links and directories, it may fail otherwise.



select destination folder to install NodeJS, NPM and Sabre Concierge tool.

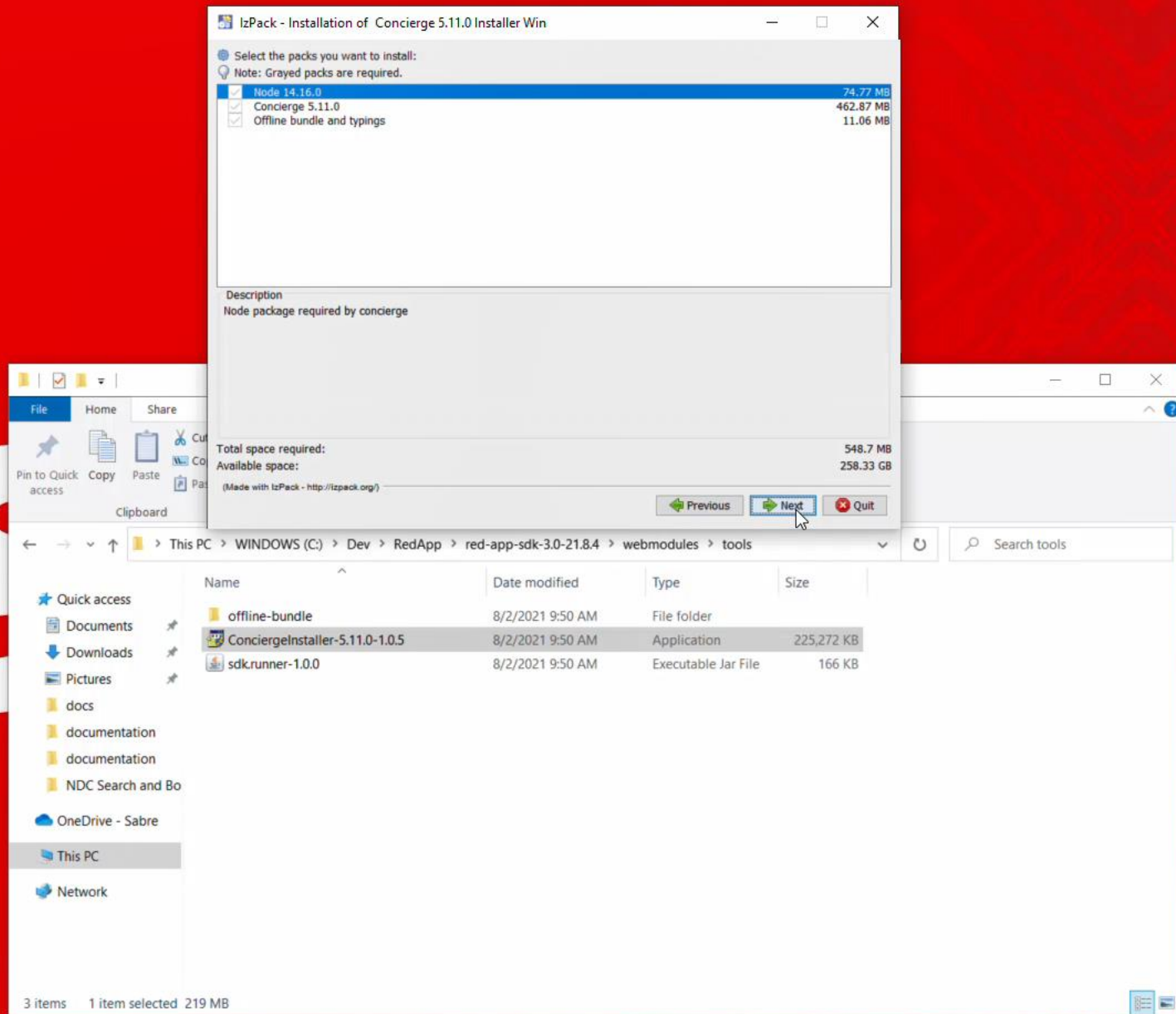
\*defaults to Program Files on the PC, but depending on the network / user policies it would be recommended to leave it out of Program files to avoid permission issues (like C:\Dev\RedApps\Concierge)



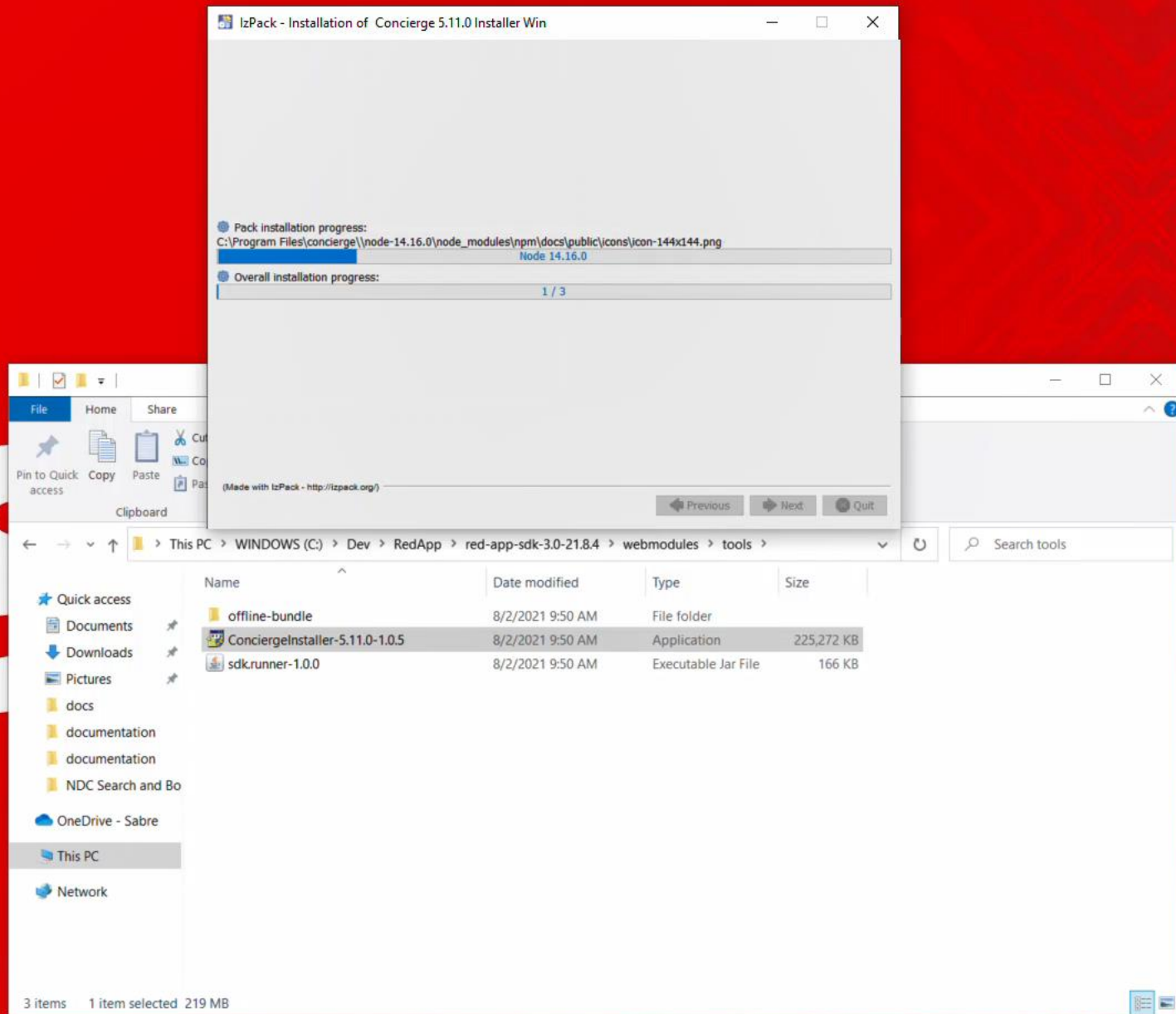


confirm Directory creation

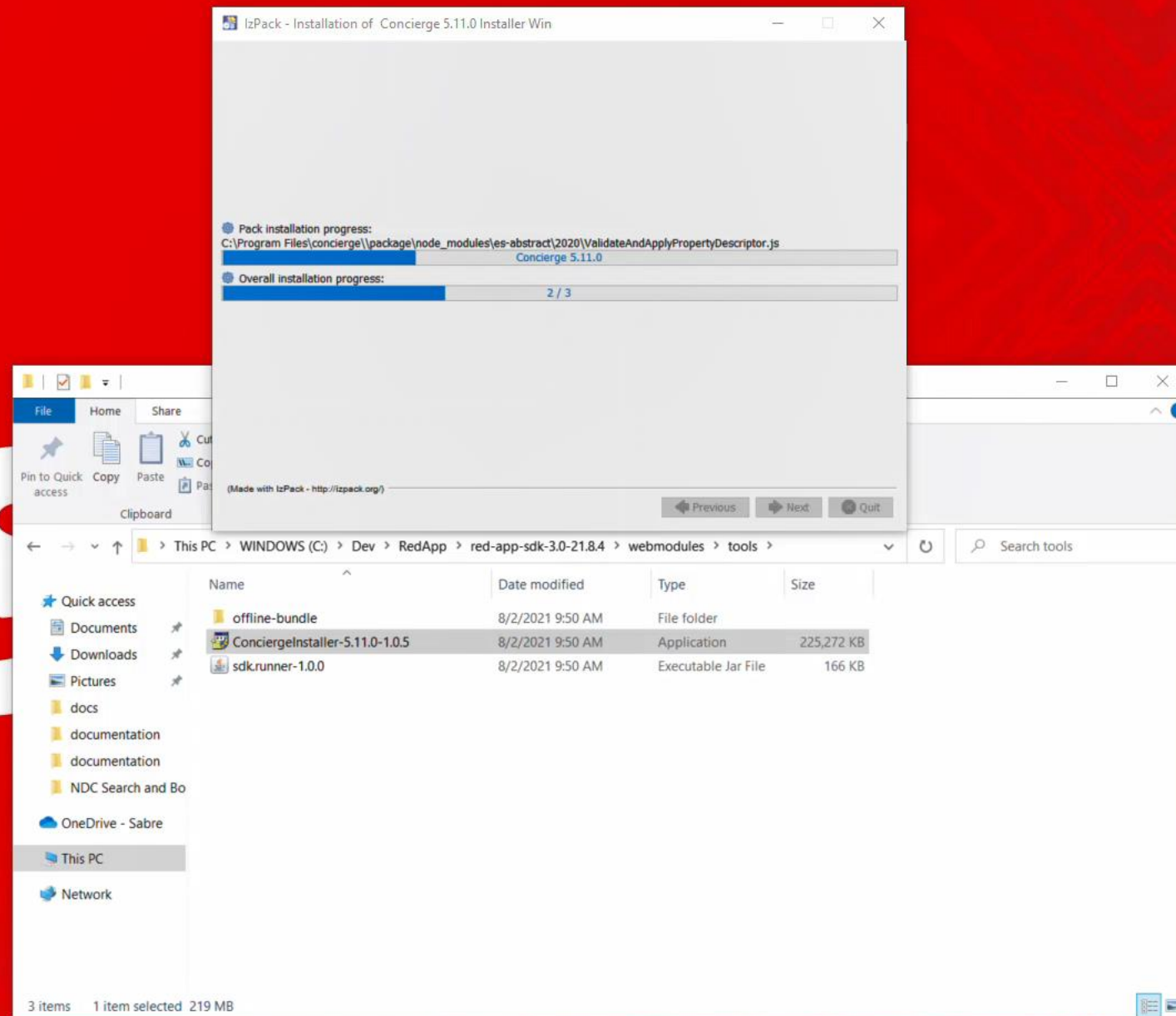




and packages to install then hit Next button

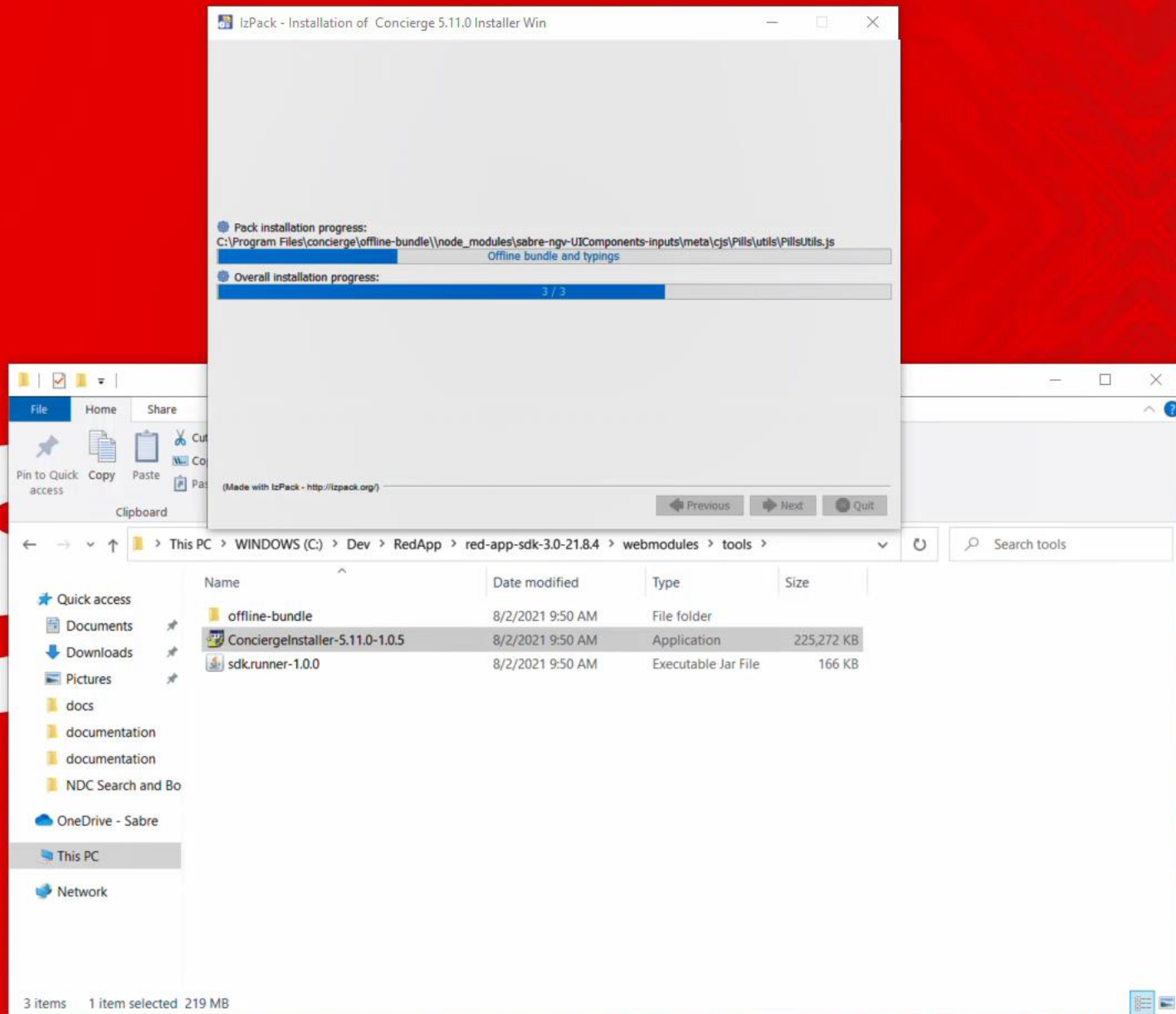


NodeJS and NPM are installed by default



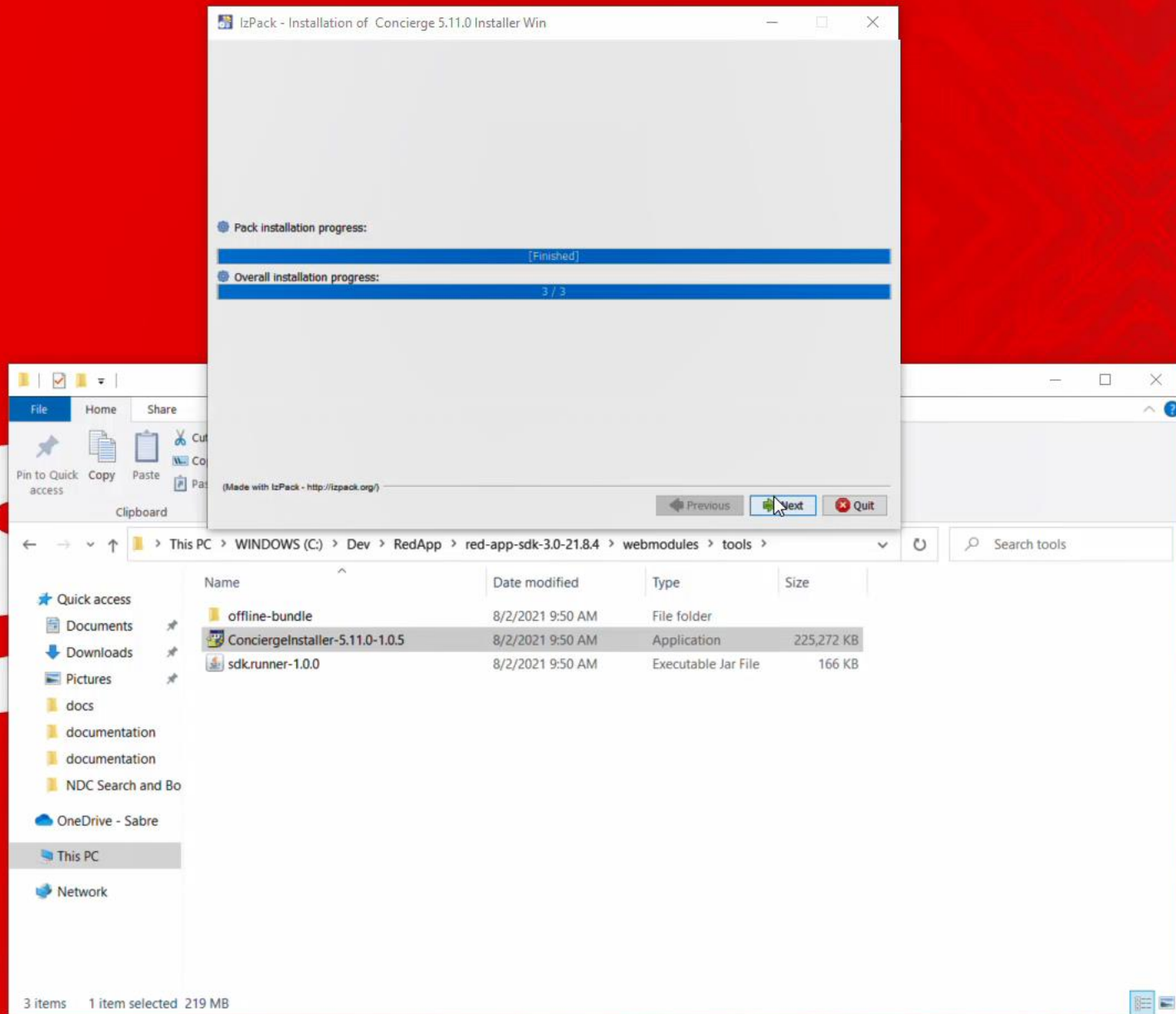
then Sabre concierge files are copied and validated through NPM (Node package manager), this may take few minutes, good opportunity for a coffee break...



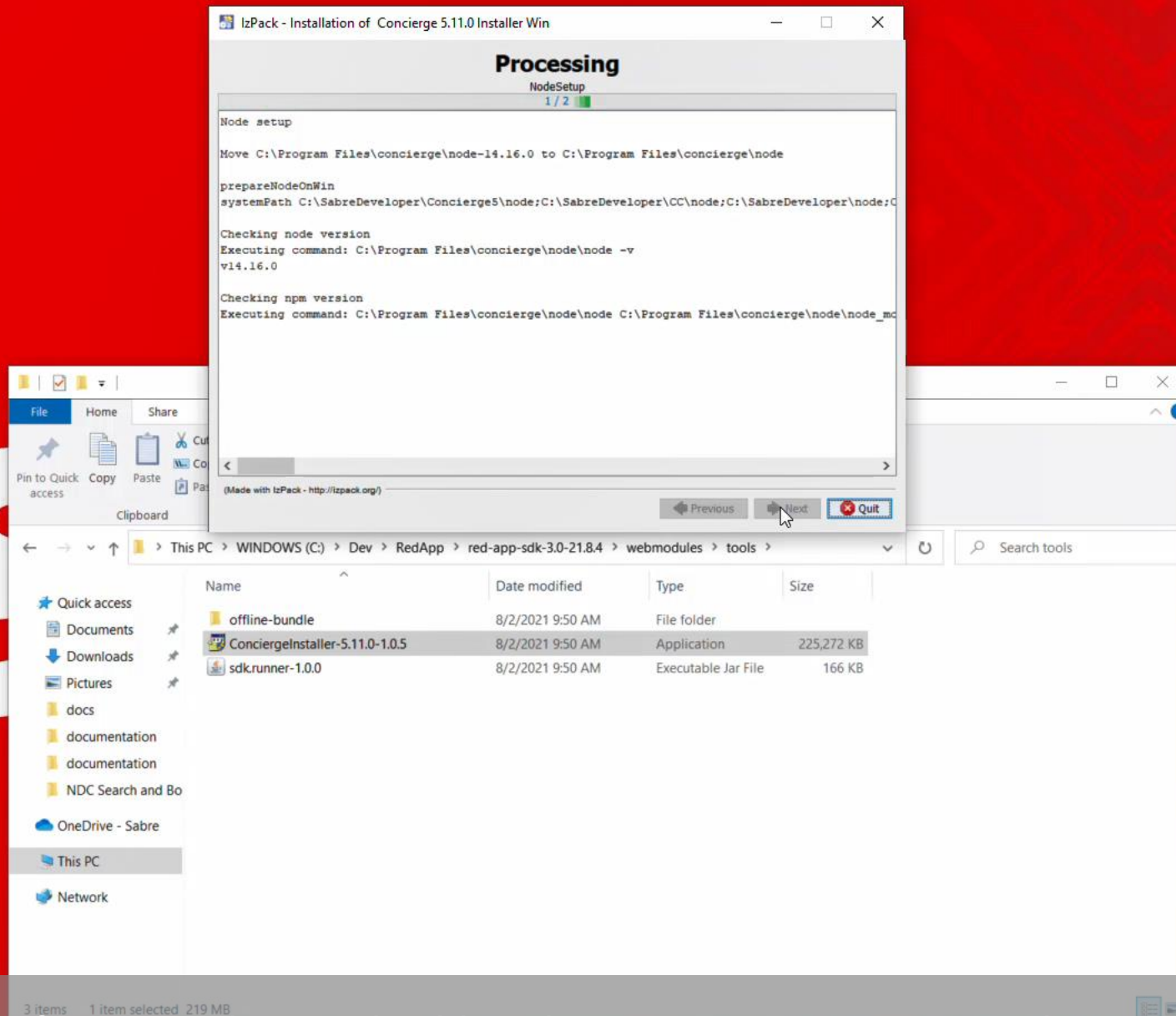


This process may take several minutes, but there is no user intervention needed

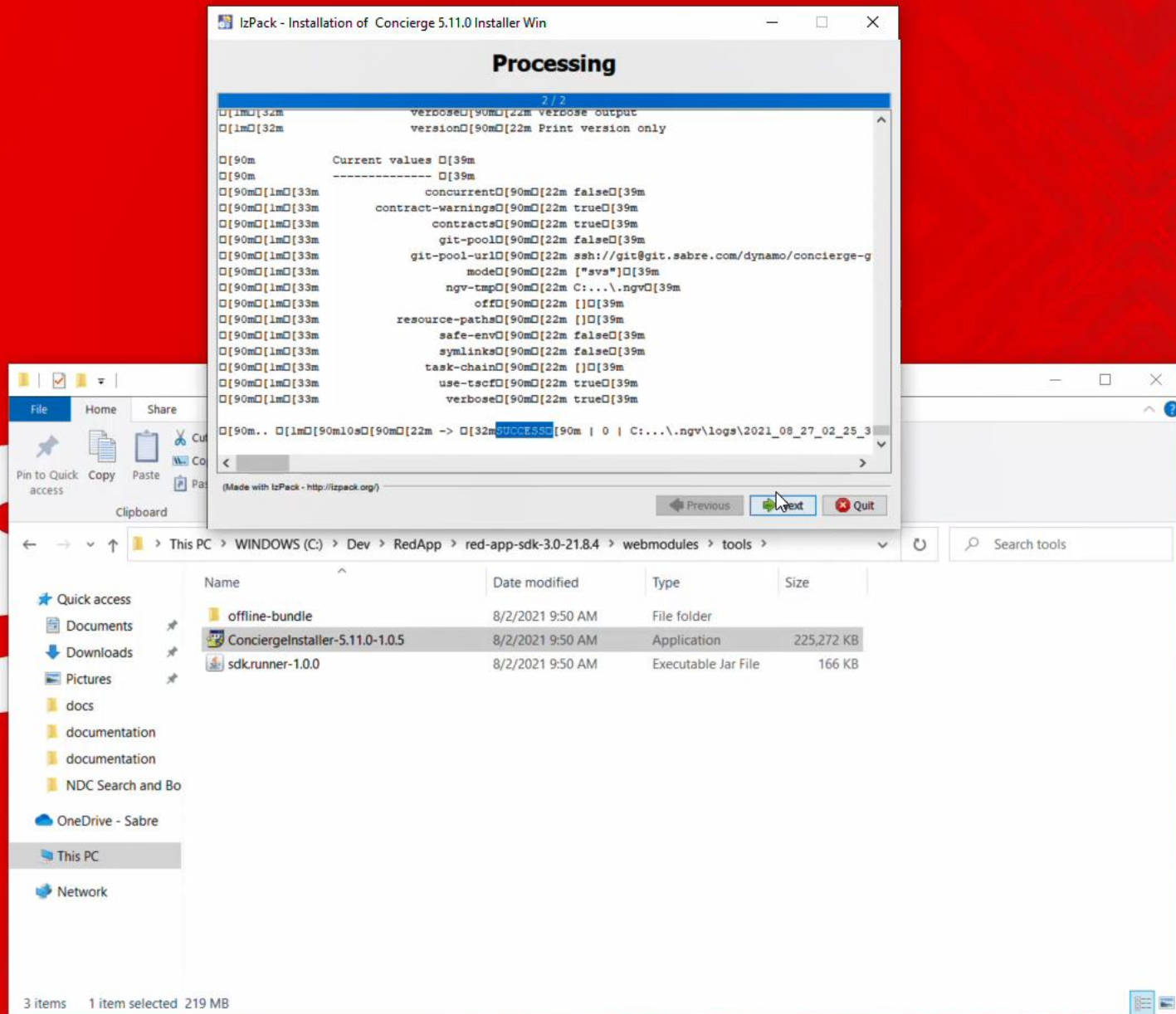




Files copied, hit Next button to start post copy procedures

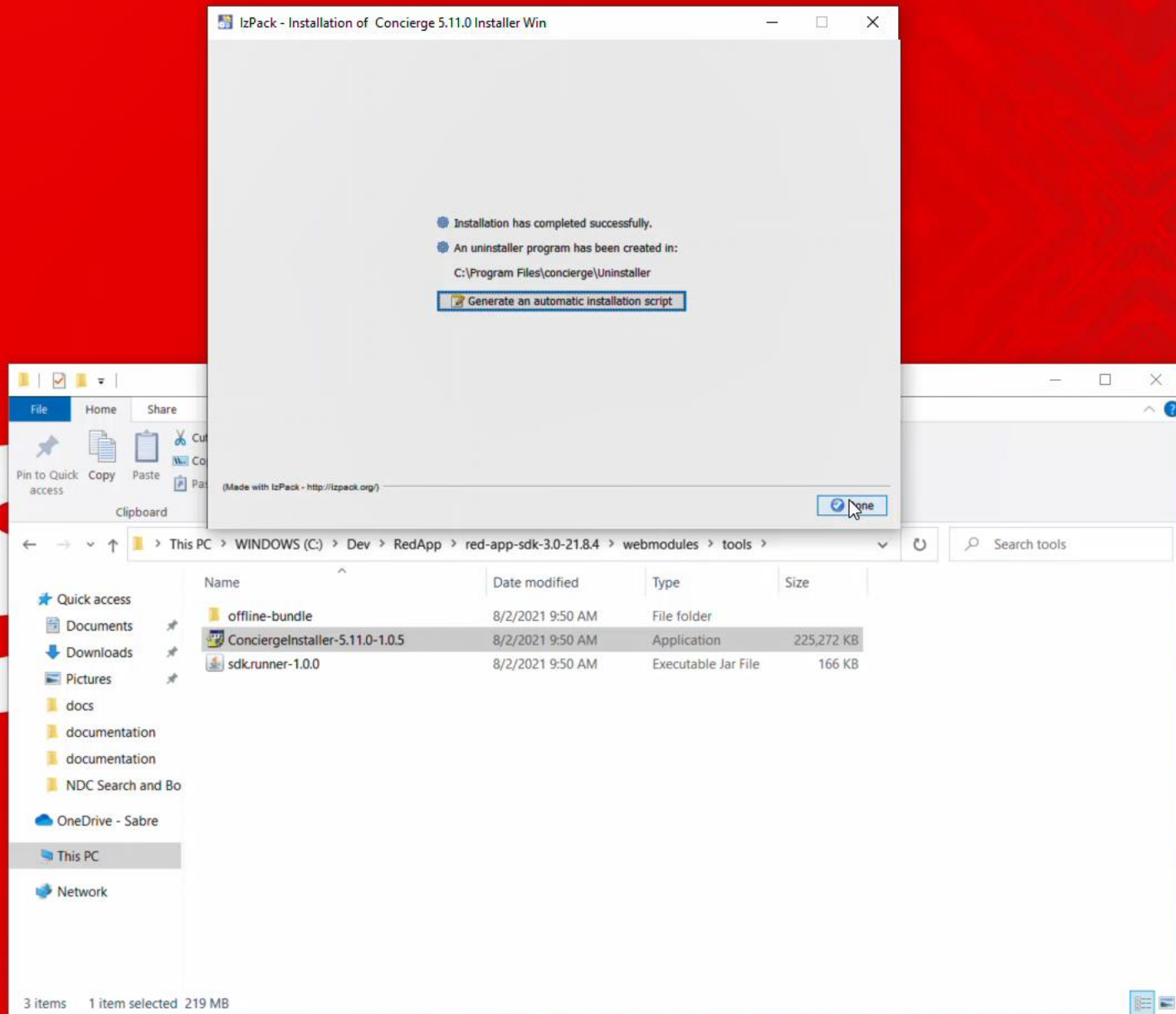


Post installation procedures, configures NodeJS and adds Sabre Concierge run command, NGV, to the system path, then SABRE\_CONCIERGE Typescript package is bound to the system and ready to be referenced during Web Red Apps development.



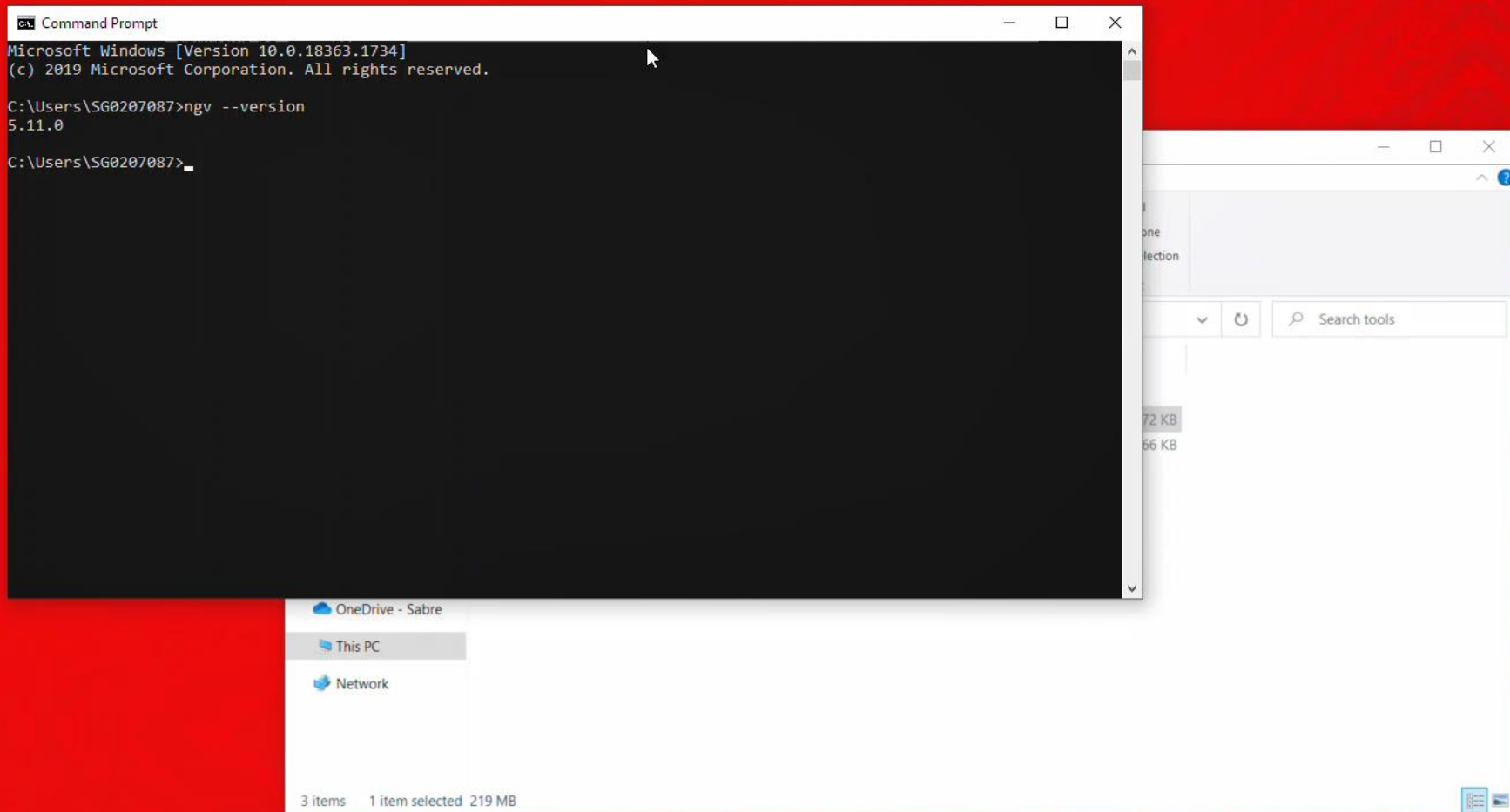
wait for SUCCESS message on installer log window, hit Next when available to finish installation procedure.



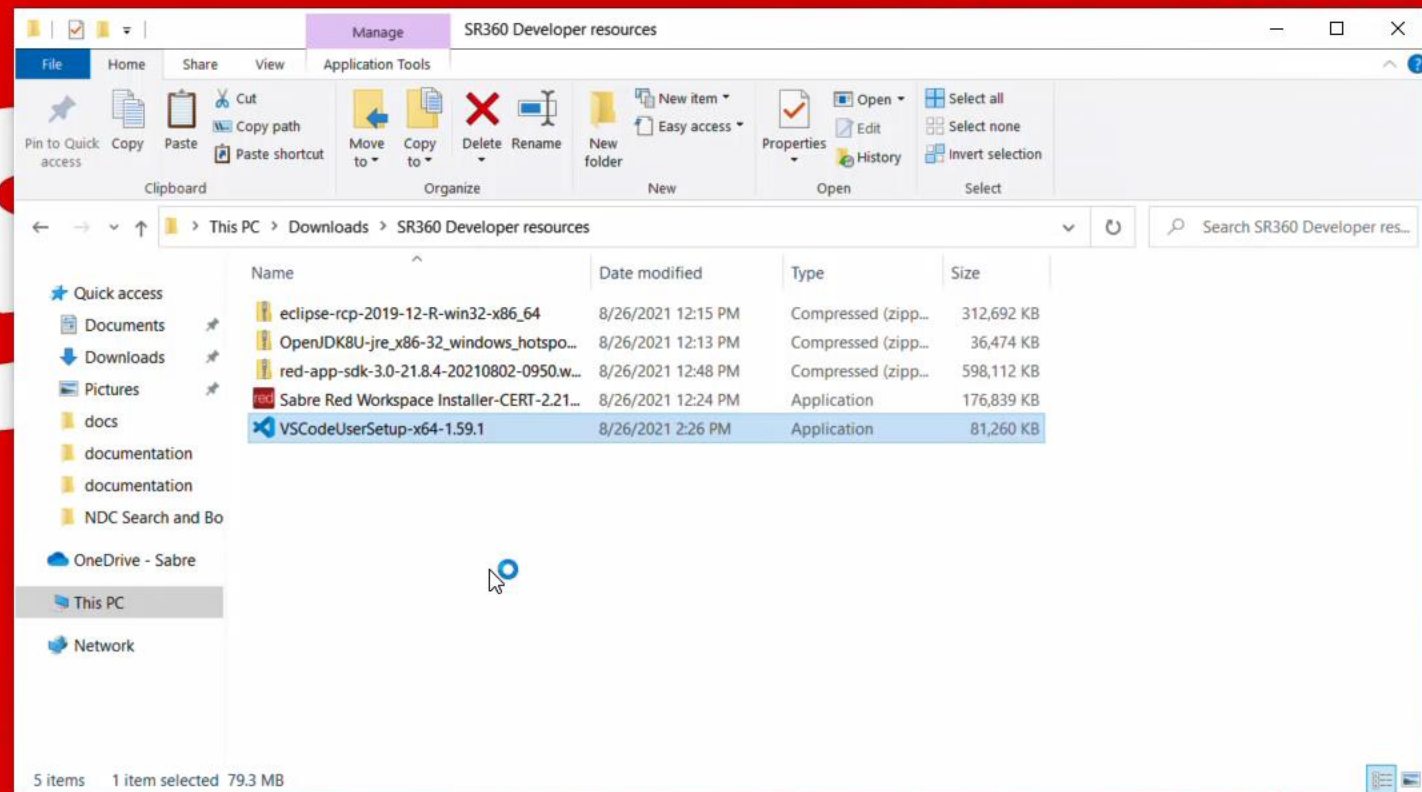


you are done with Concierge Installer

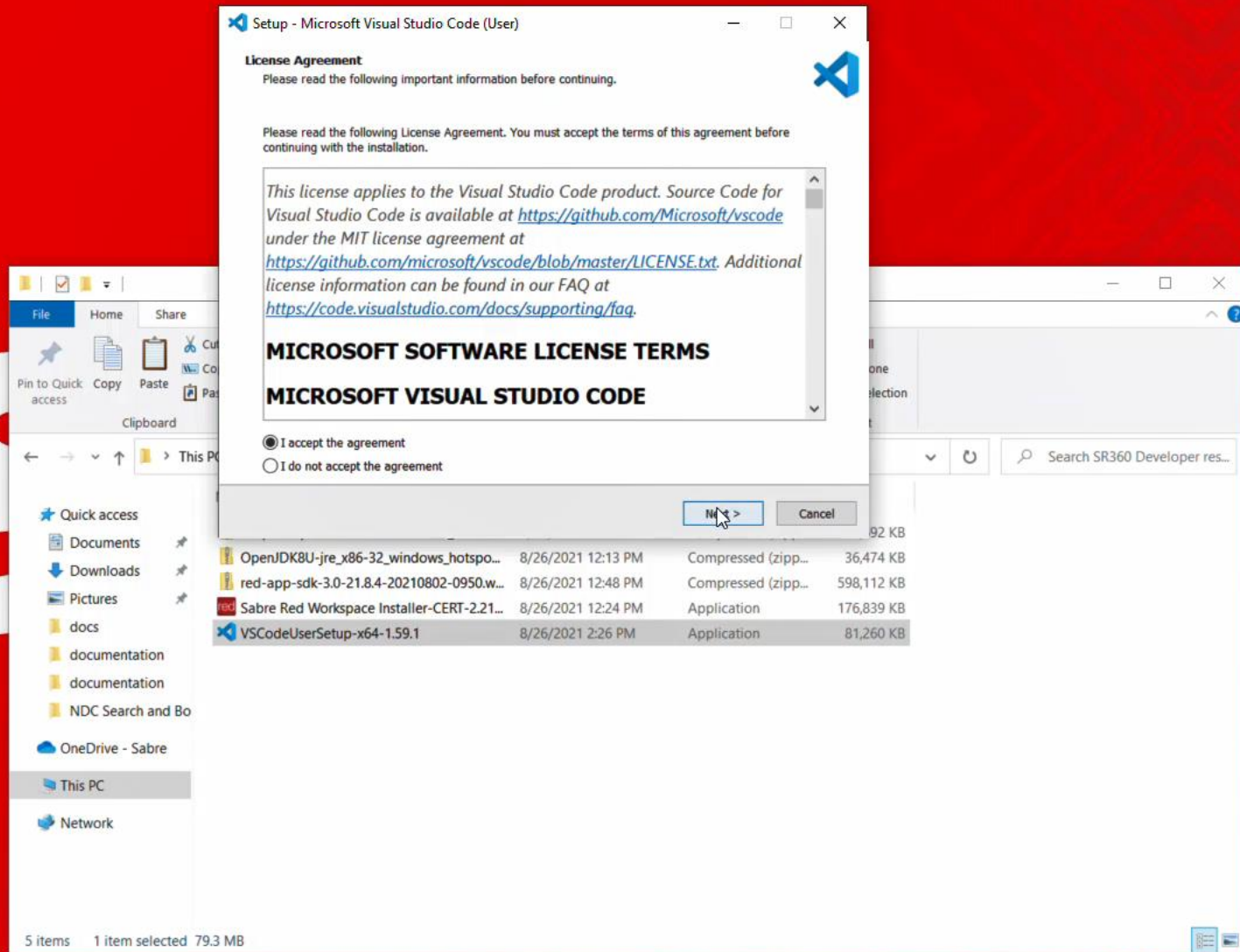




to validate installation open Command Prompt or Terminal window and type NGV --version command, it should echo the version of Sabre Concierge Tool just installed

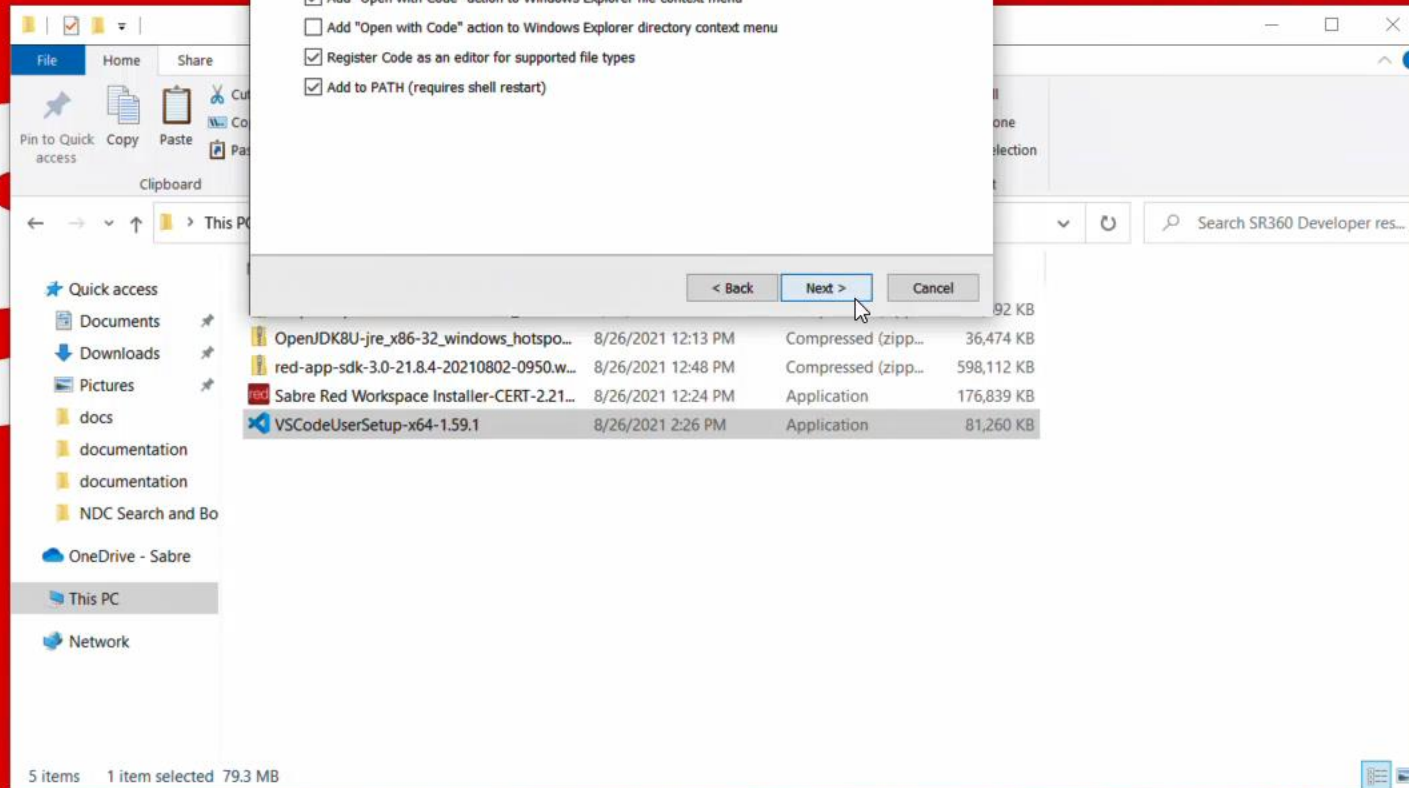
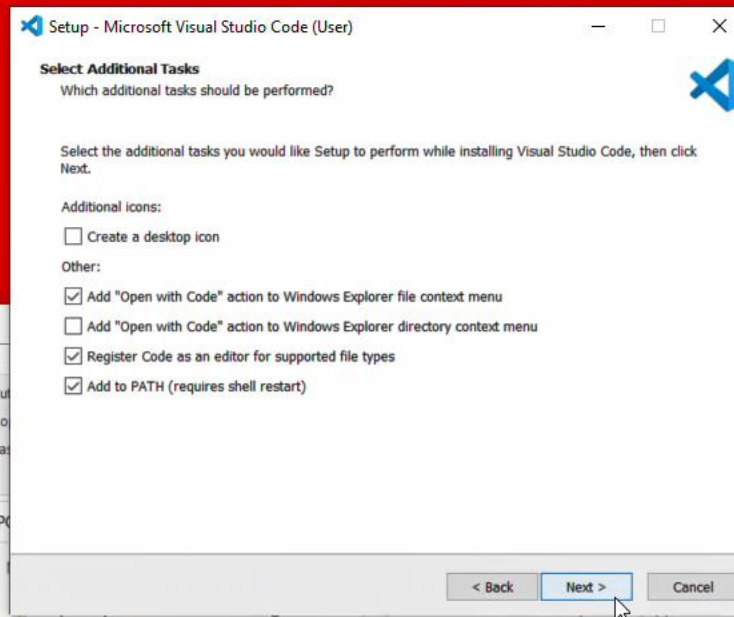


Now let's install Visual Studio code, as optional Editor for Web Modules, using Typescript language



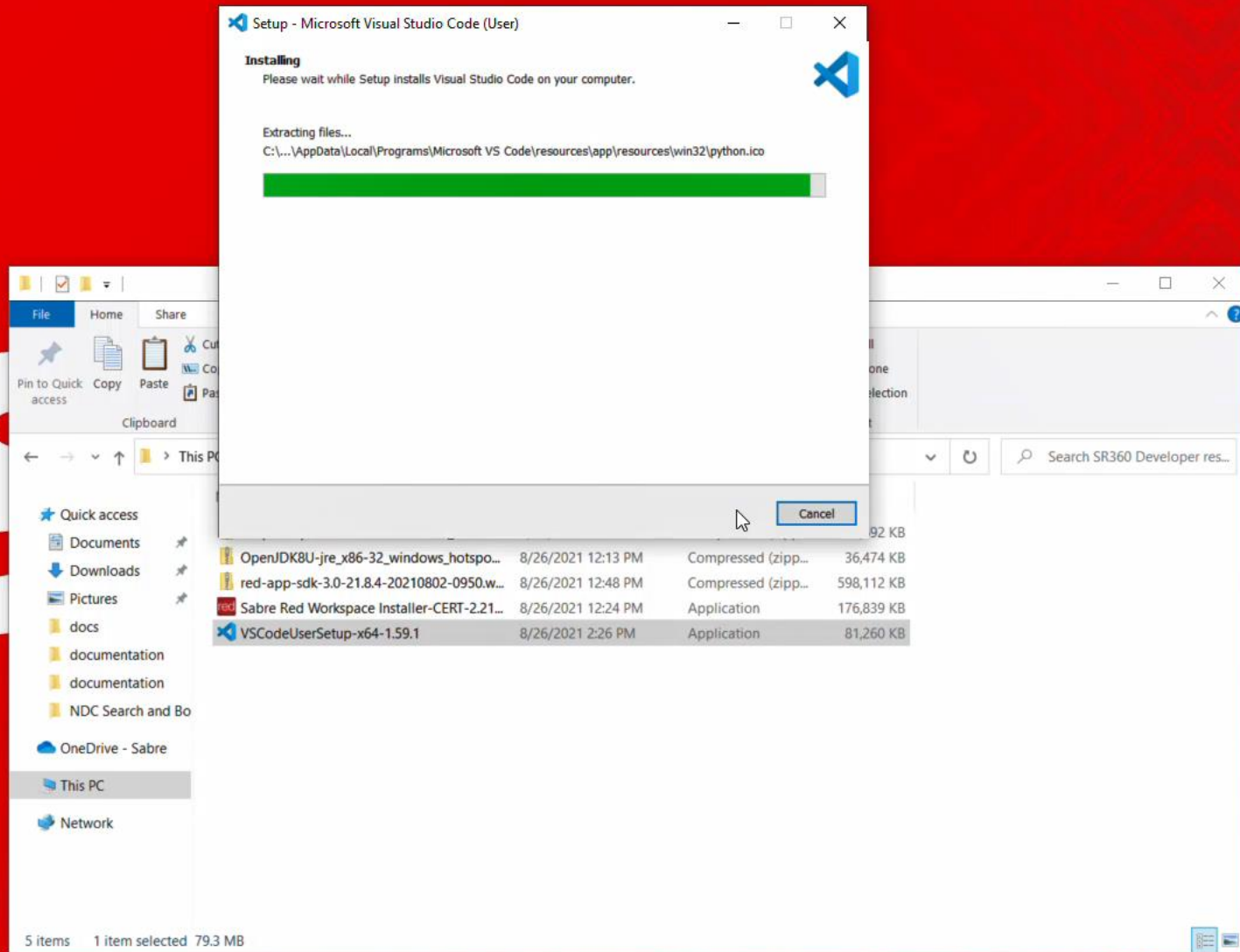
Just start installer App and follow instructions on the screen



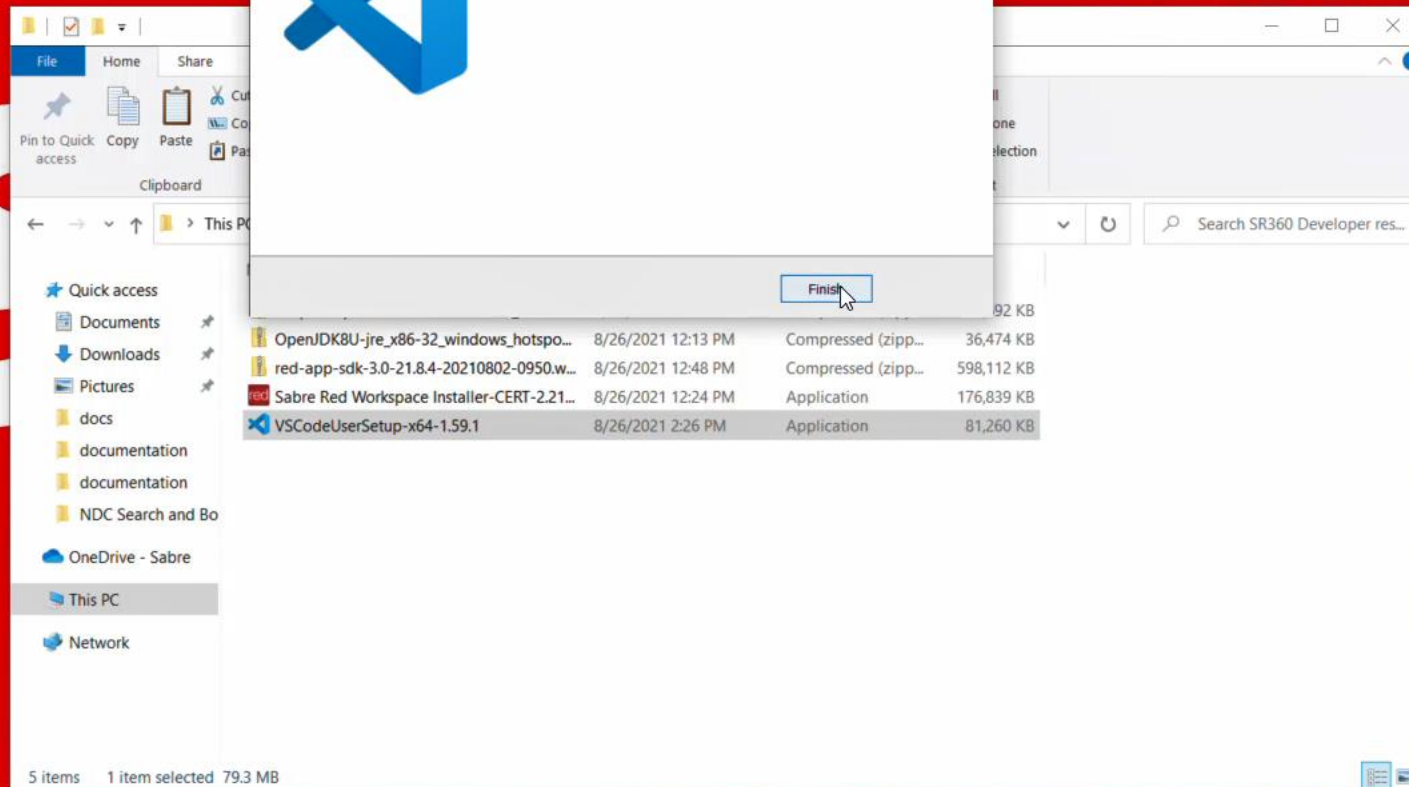
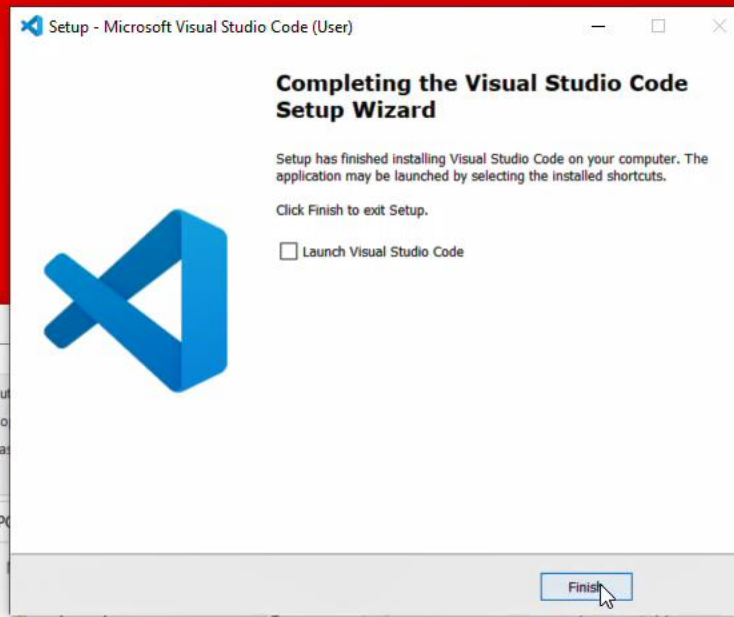


Choose additional tasks as desired





Visual Studio Code files are copied



Then setup is finished



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Developers Resources & Downloads

Setup Development Environment

Build and Debug Red Apps

Bundle and Publishing procedures



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Build and Debug Red Apps



Build Red Apps

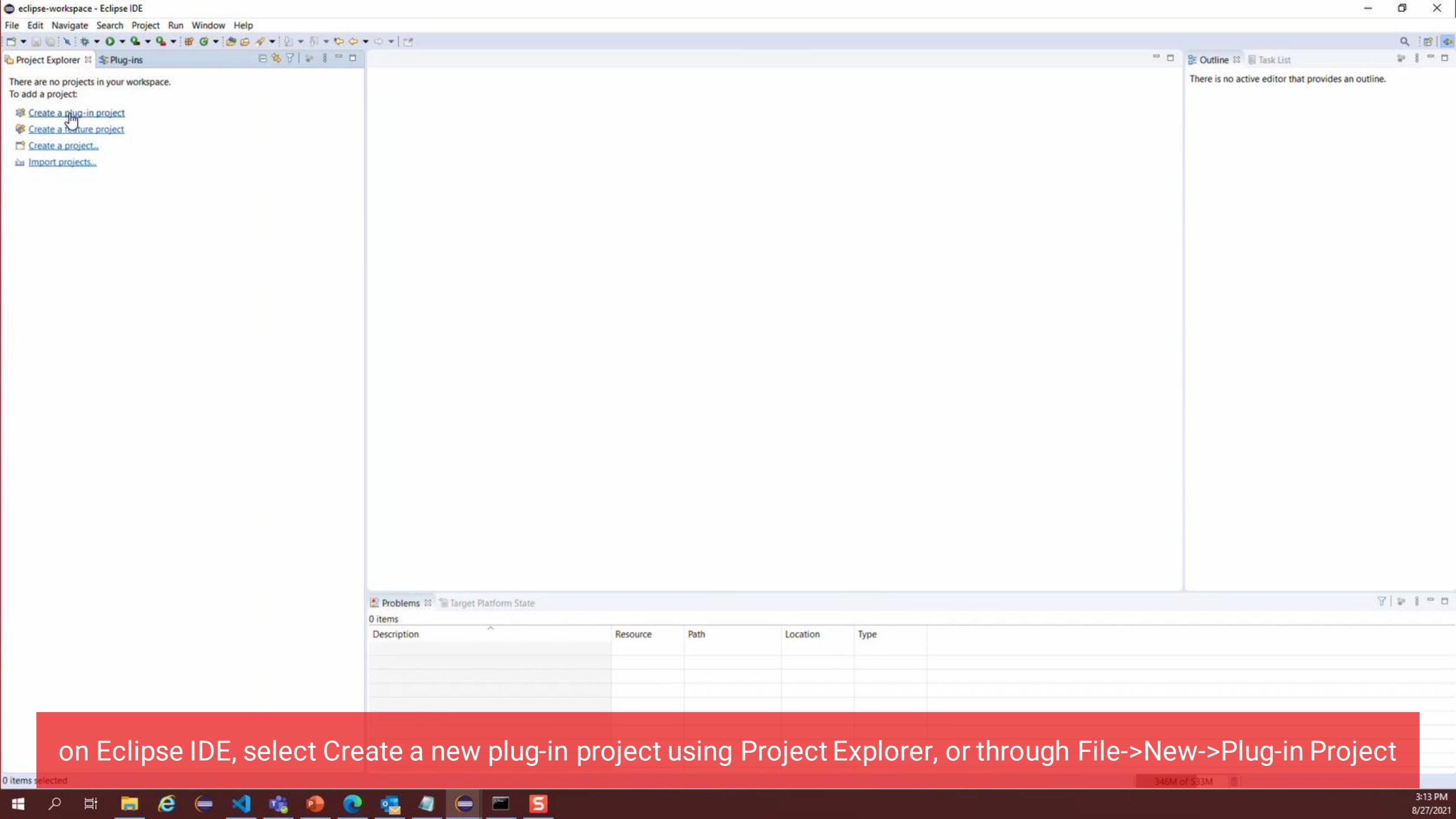
Basic Red App project structure



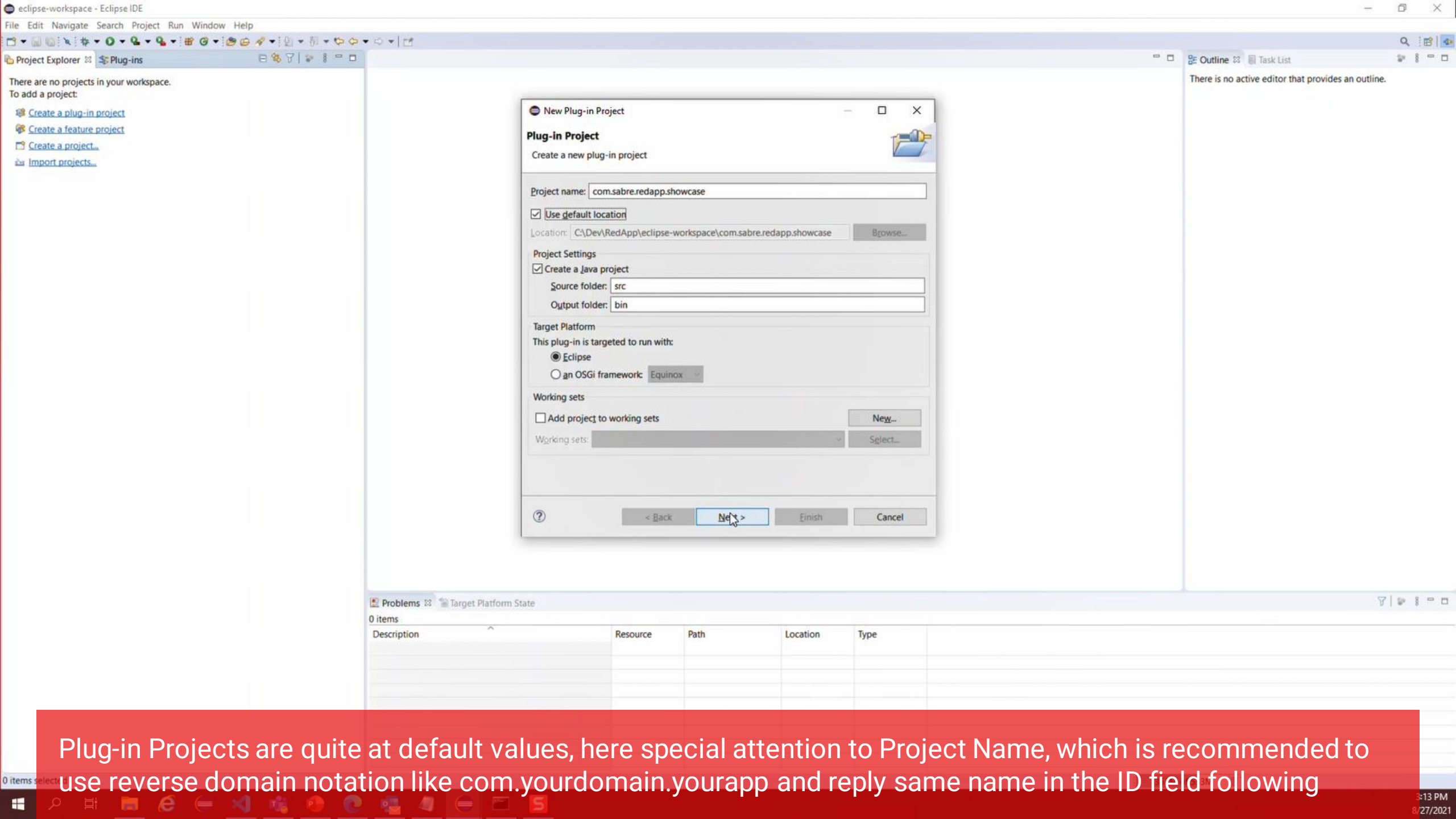
Run / Debug Red Apps

Sabre Red 360 Desktop  
Sabre Red Web

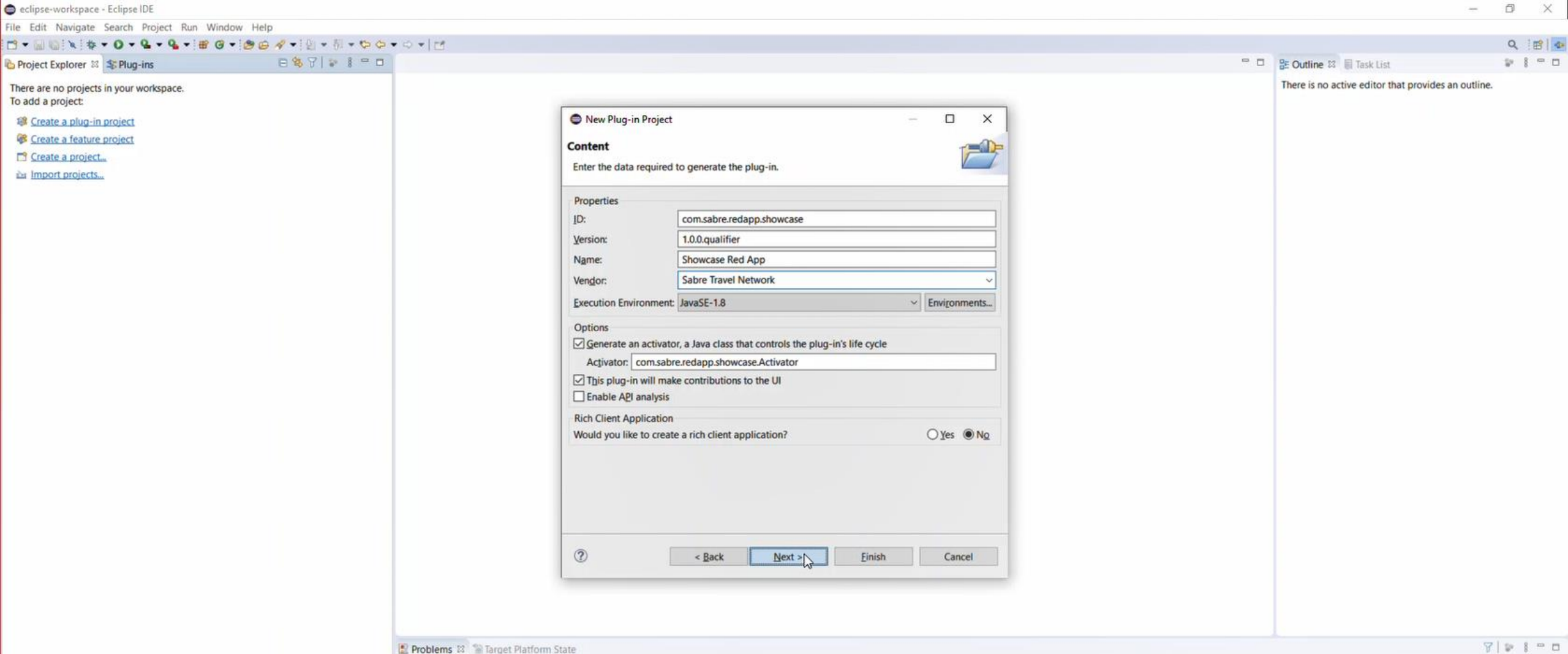




on Eclipse IDE, select Create a new plug-in project using Project Explorer, or through File->New->Plug-in Project



Plug-in Projects are quite at default values, here special attention to Project Name, which is recommended to use reverse domain notation like com.yourdomain.yourapp and reply same name in the ID field following



## under plug-in Properties:

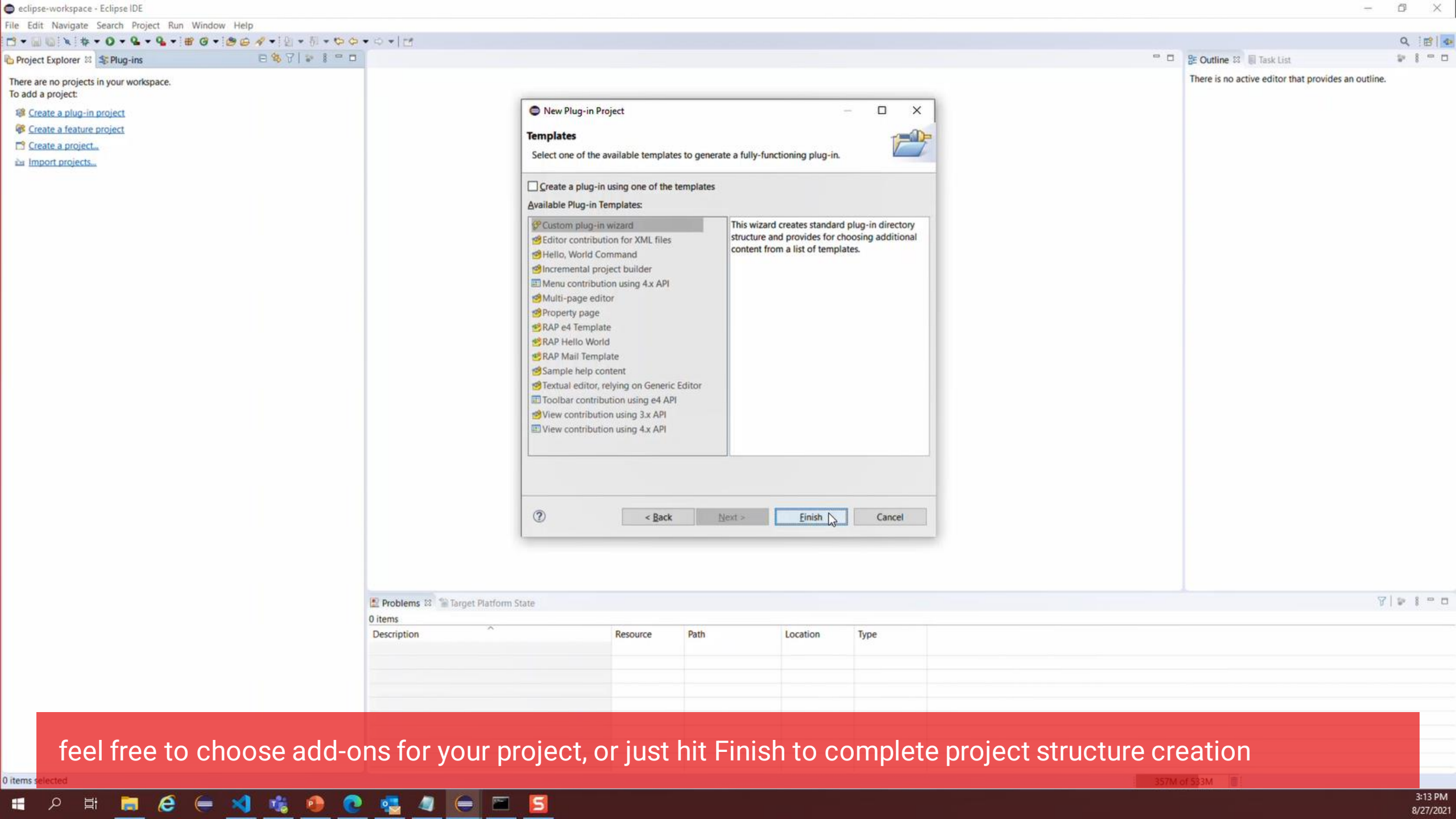
ID : uniquely identifies a plug-in, hence usage of reverse domain notation to avoid duplicates

Version : Major.Minor.Patch.qualifier format

Name: Red App comercial name, same as registered under Red App proposal

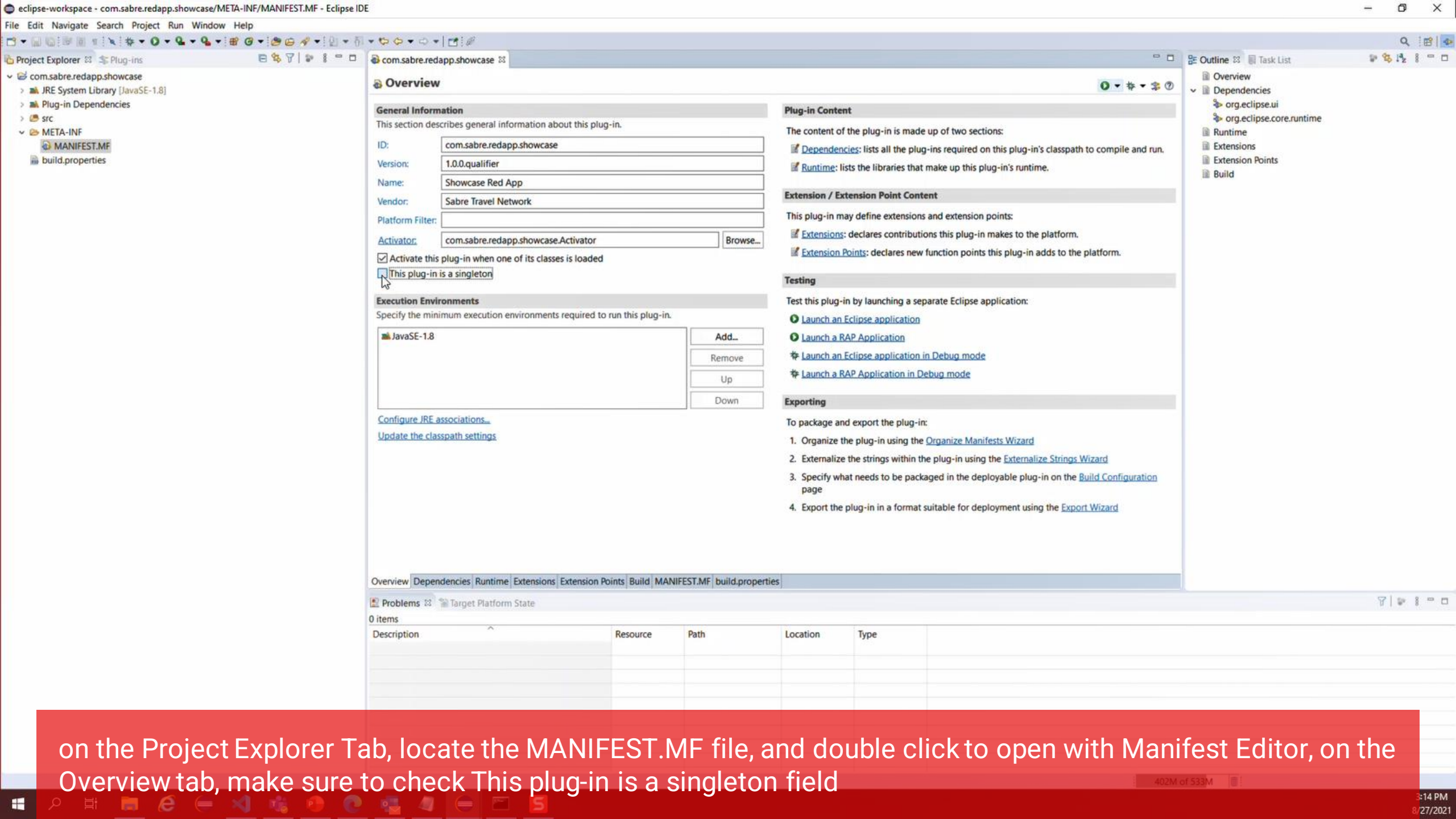
Vendor: Red App provider as registered on development agreement.

\*\*\* Generate an activator check is required for Java / Sabre Red 360 Desktop only Red Apps, optional for Web Red Apps

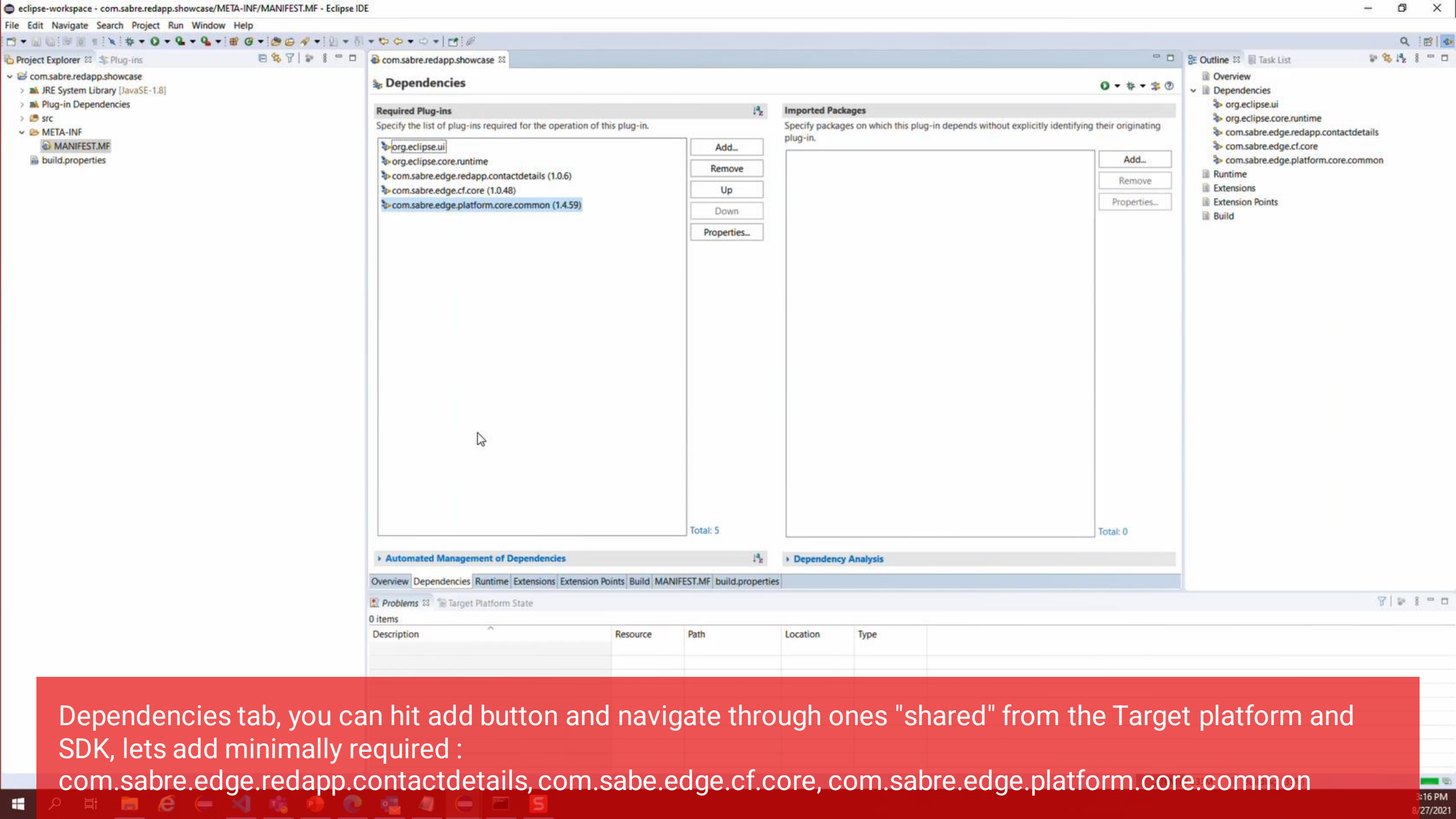


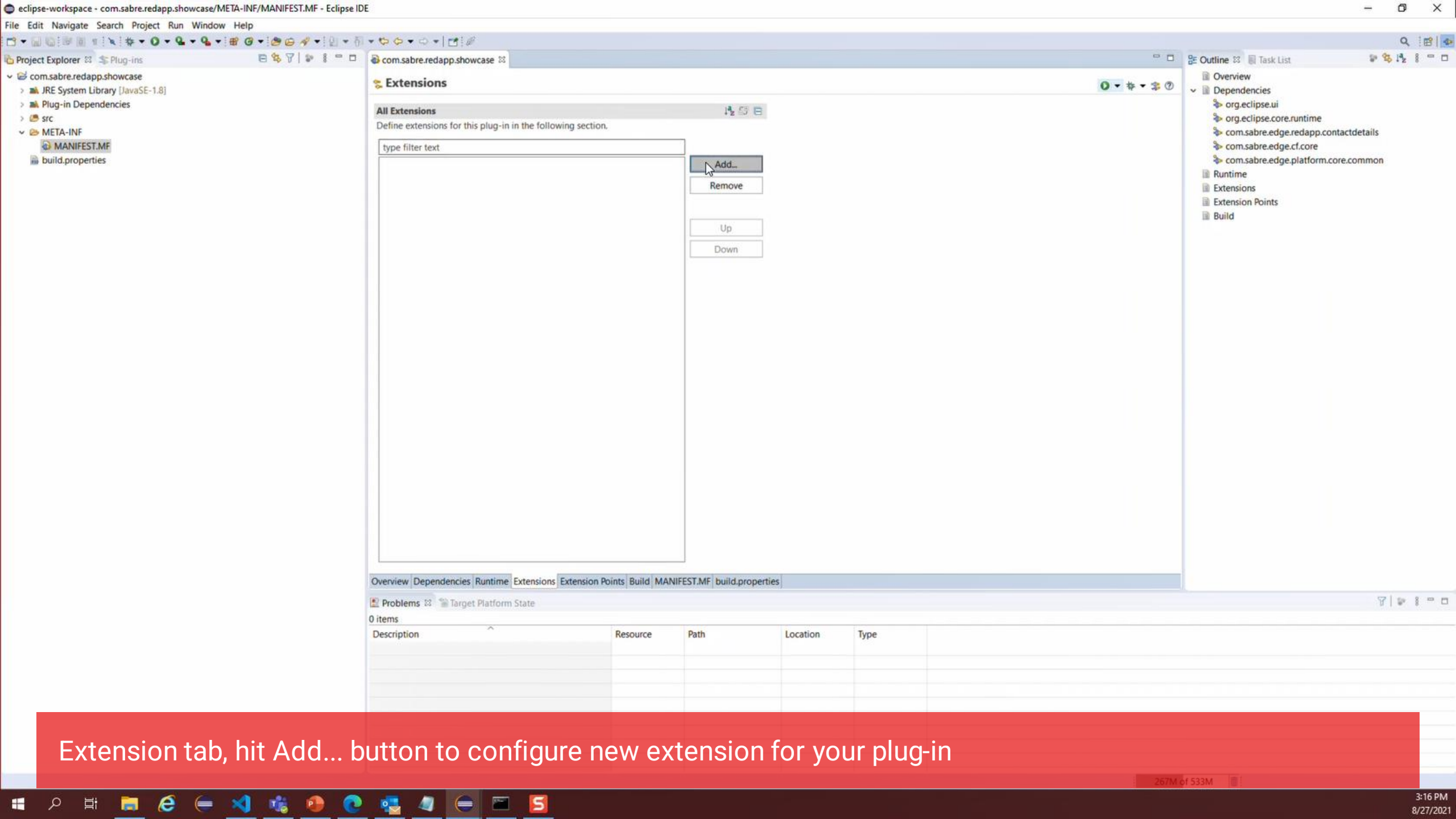
feel free to choose add-ons for your project, or just hit Finish to complete project structure creation



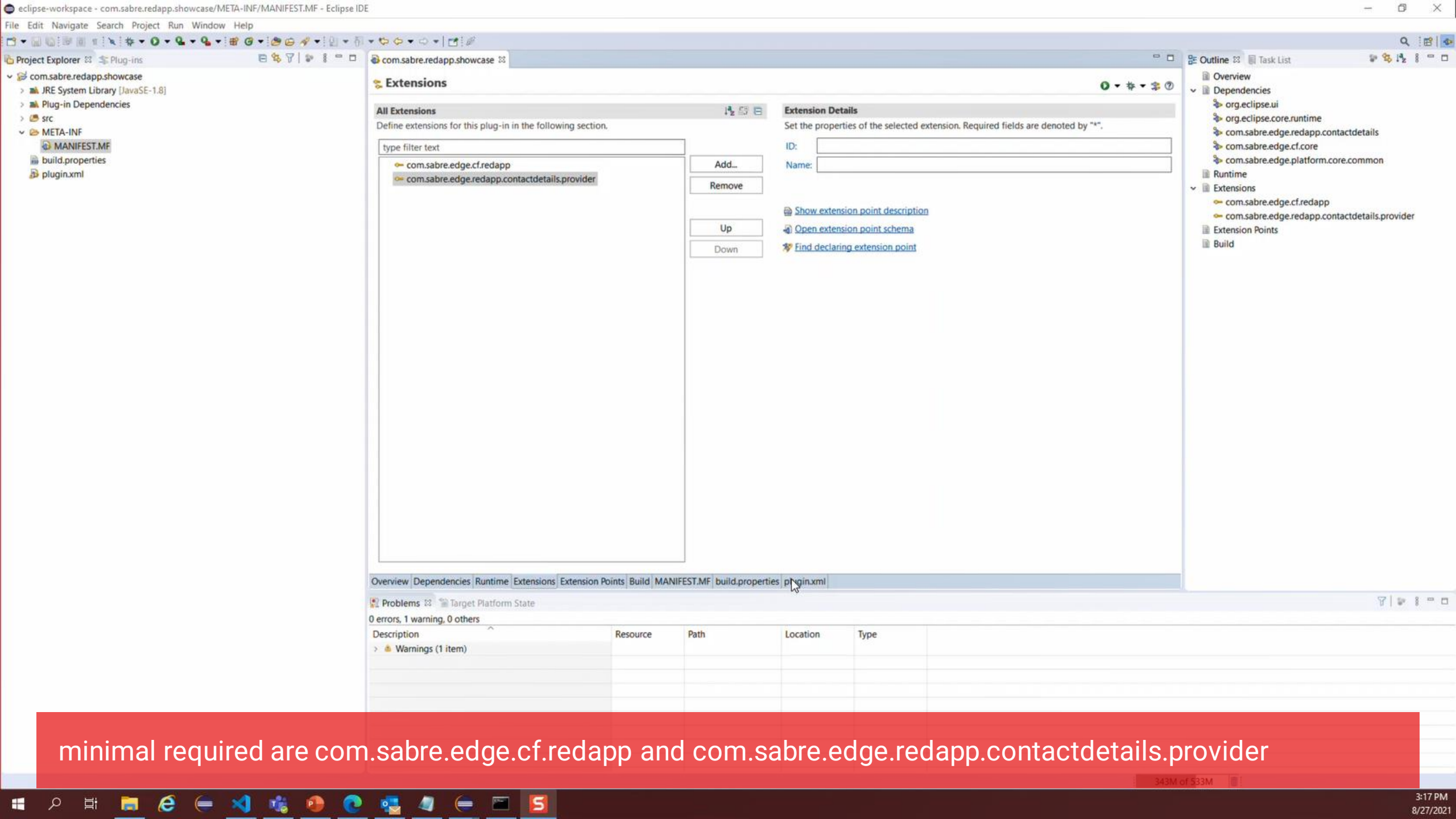


on the Project Explorer Tab, locate the MANIFEST.MF file, and double click to open with Manifest Editor, on the Overview tab, make sure to check This plug-in is a singleton field



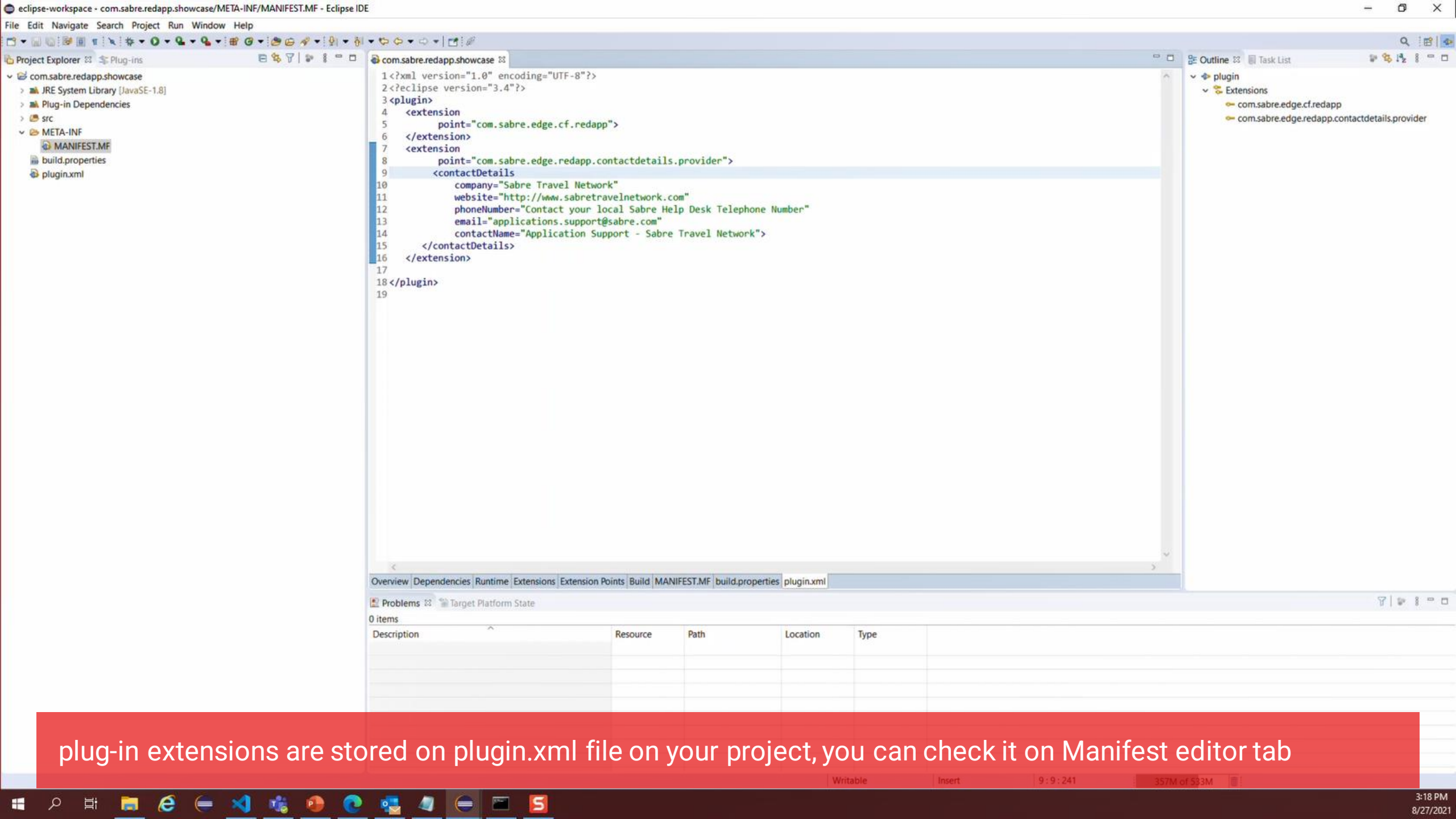


Extension tab, hit Add... button to configure new extension for your plug-in

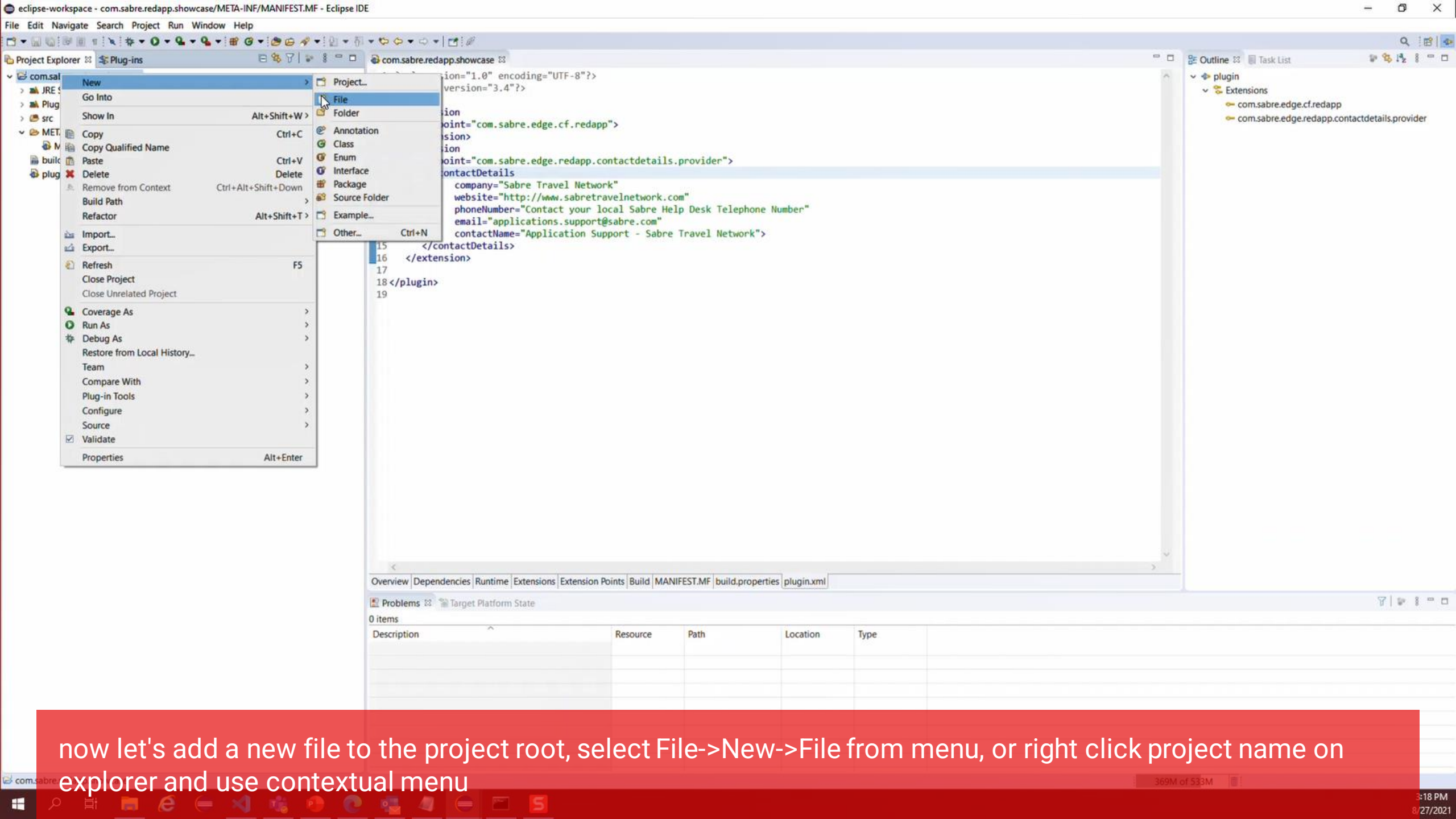


minimal required are com.sabre.edge.cf.redapp and com.sabre.edge.redapp.contactdetails.provider

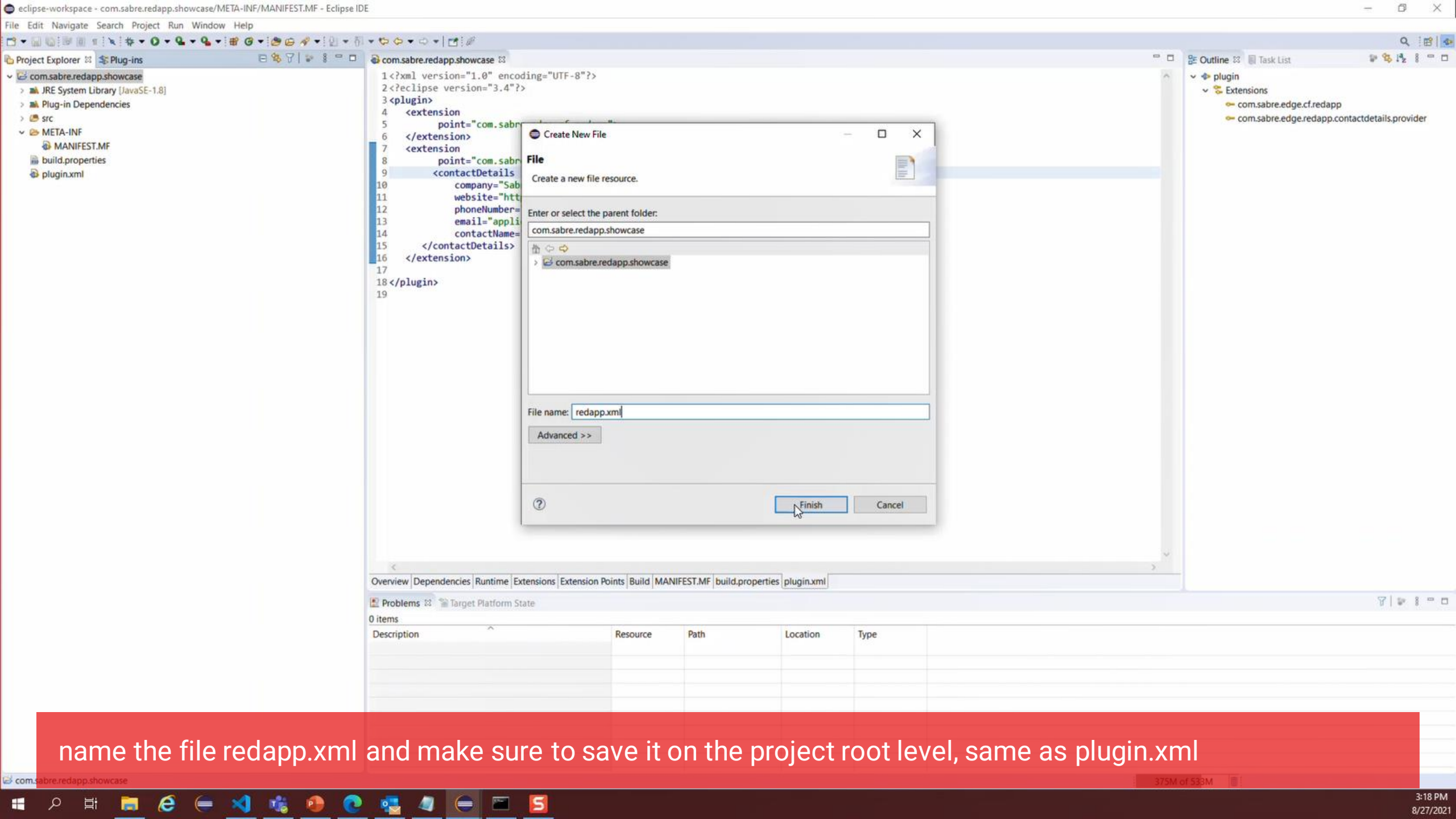




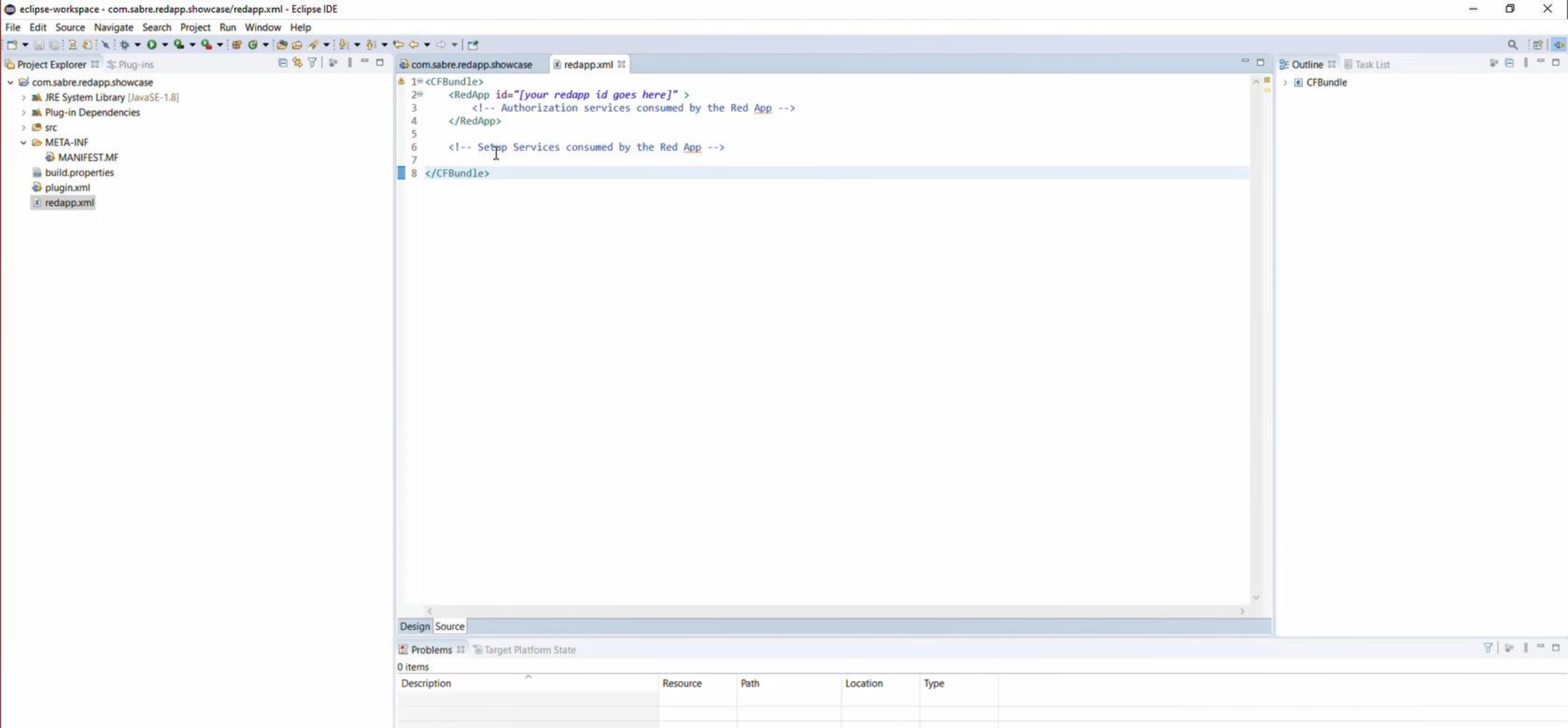
plug-in extensions are stored on plugin.xml file on your project, you can check it on Manifest editor tab



now let's add a new file to the project root, select File->New->File from menu, or right click project name on explorer and use contextual menu

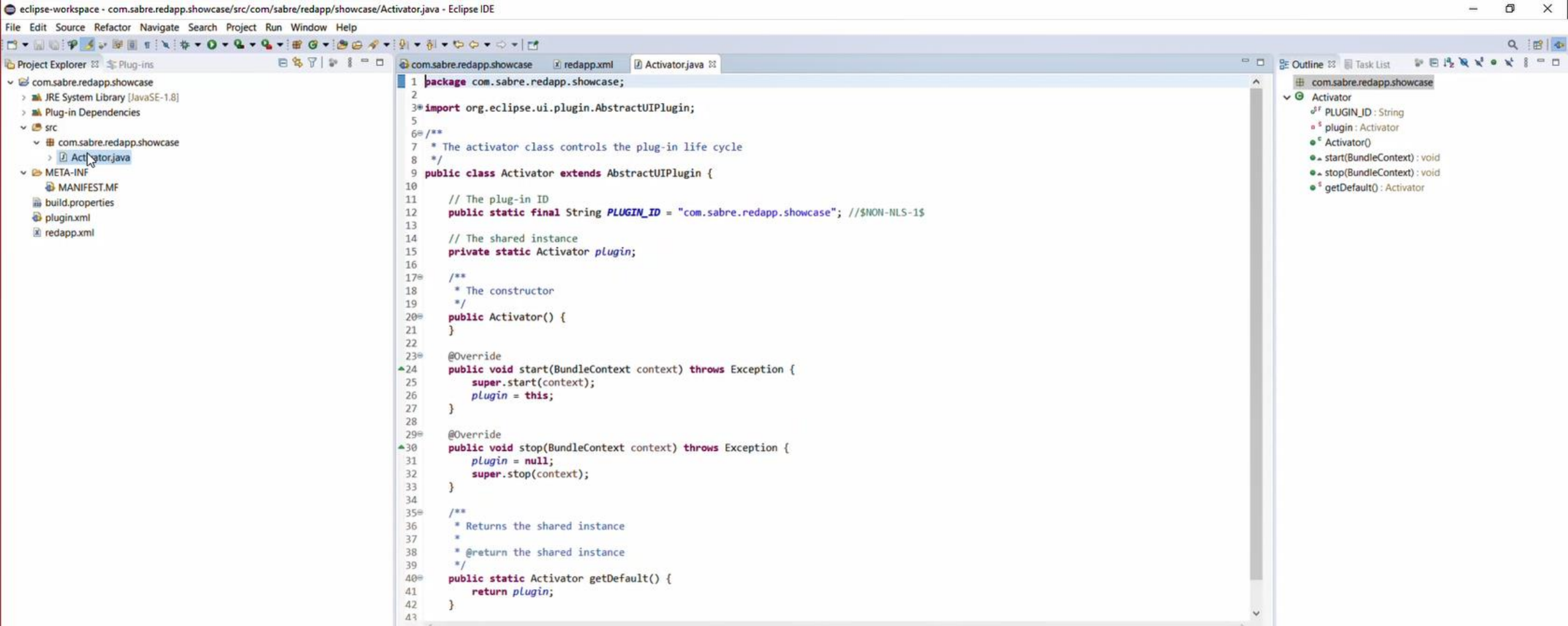


name the file redapp.xml and make sure to save it on the project root level, same as plugin.xml

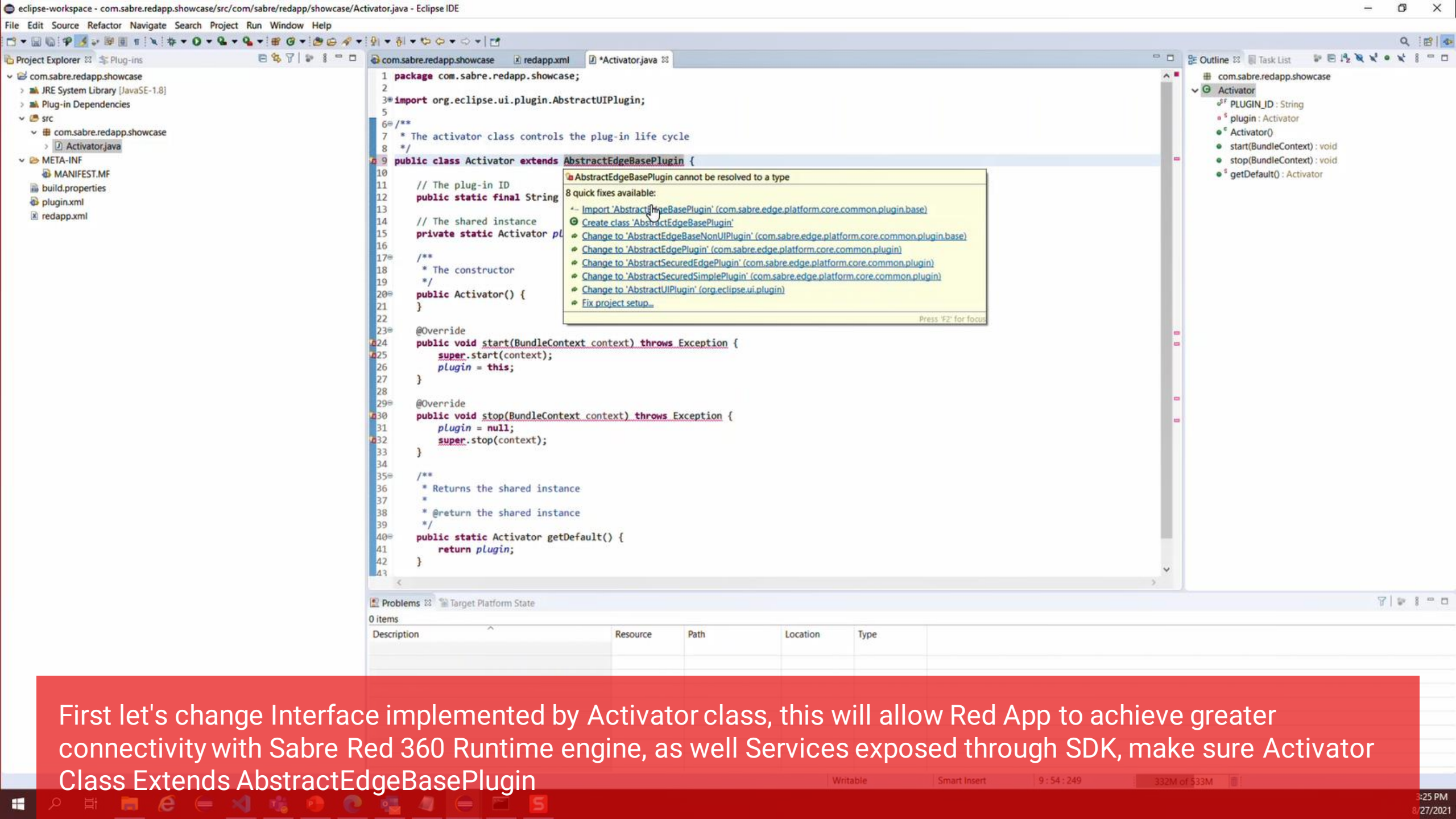


All Red Adds must expose a redapp.xml file with mandatory element containing the Red App ID for your project, the RedAppID is given when Red App proposal is approved through Sabre Red App centre.  
\*\*\*You can start building your Red app and running within Eclipse target platform without a definitive RedApp ID / proposal , just set it as 22 random numbers.

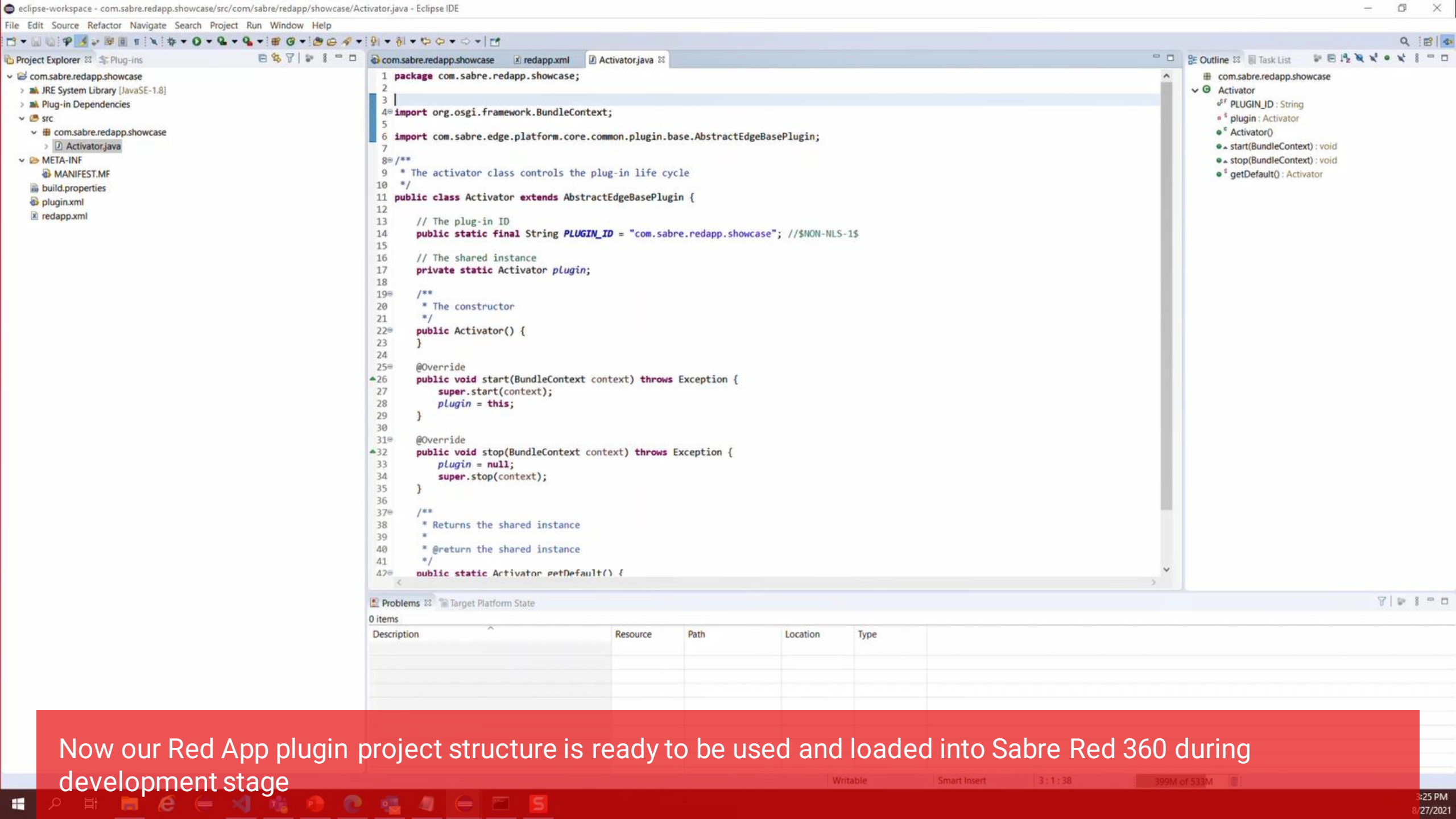




Now that we created our bare-minimal Red App plug-in, let's take a look on the Activator class and get familiarized with its code and functionality



First let's change Interface implemented by Activator class, this will allow Red App to achieve greater connectivity with Sabre Red 360 Runtime engine, as well Services exposed through SDK, make sure Activator Class Extends AbstractEdgeBasePlugin



Now our Red App plugin project structure is ready to be used and loaded into Sabre Red 360 during development stage



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Build and Debug Red Apps



Build Red Apps

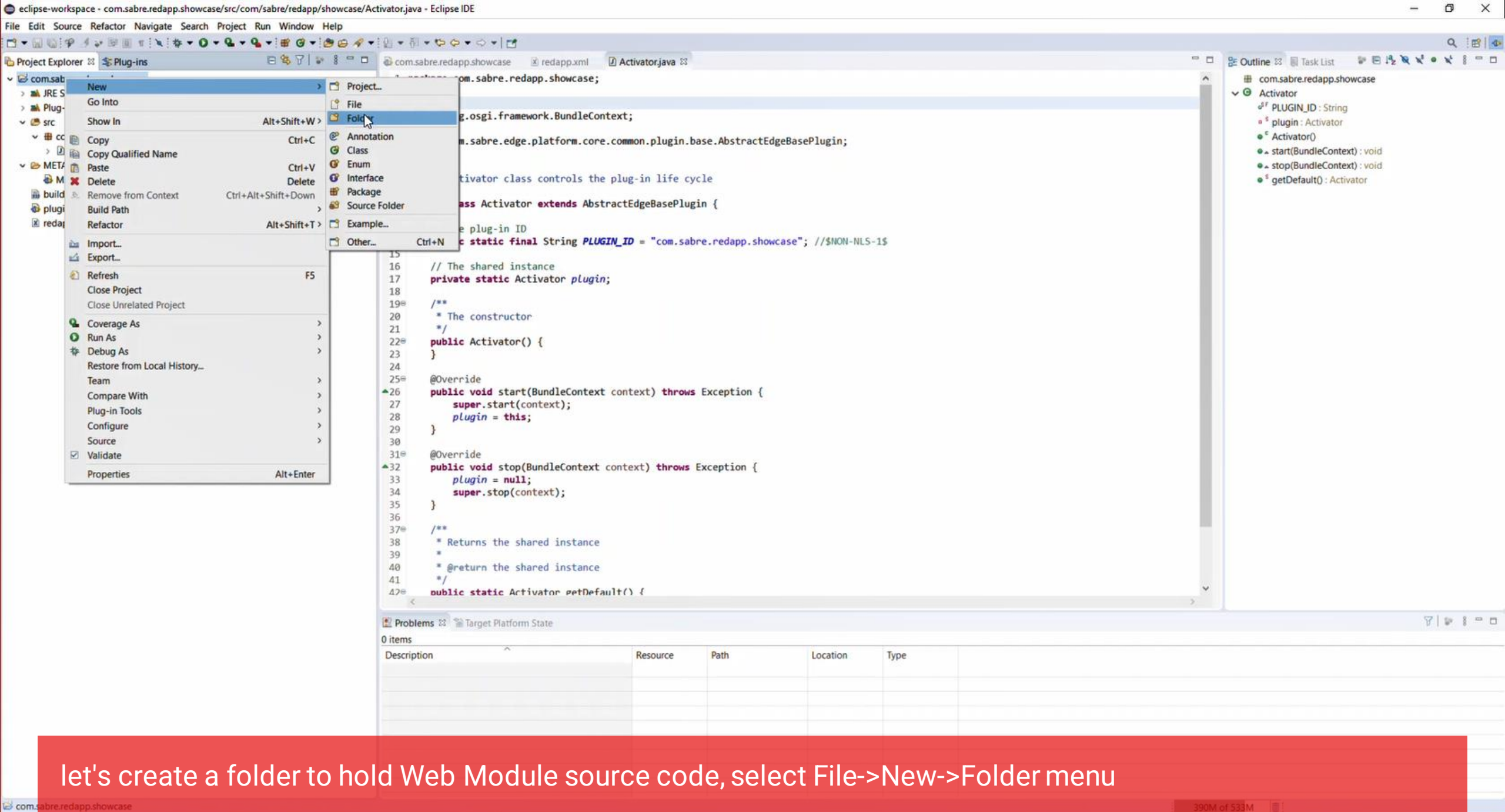
Web Module project structure



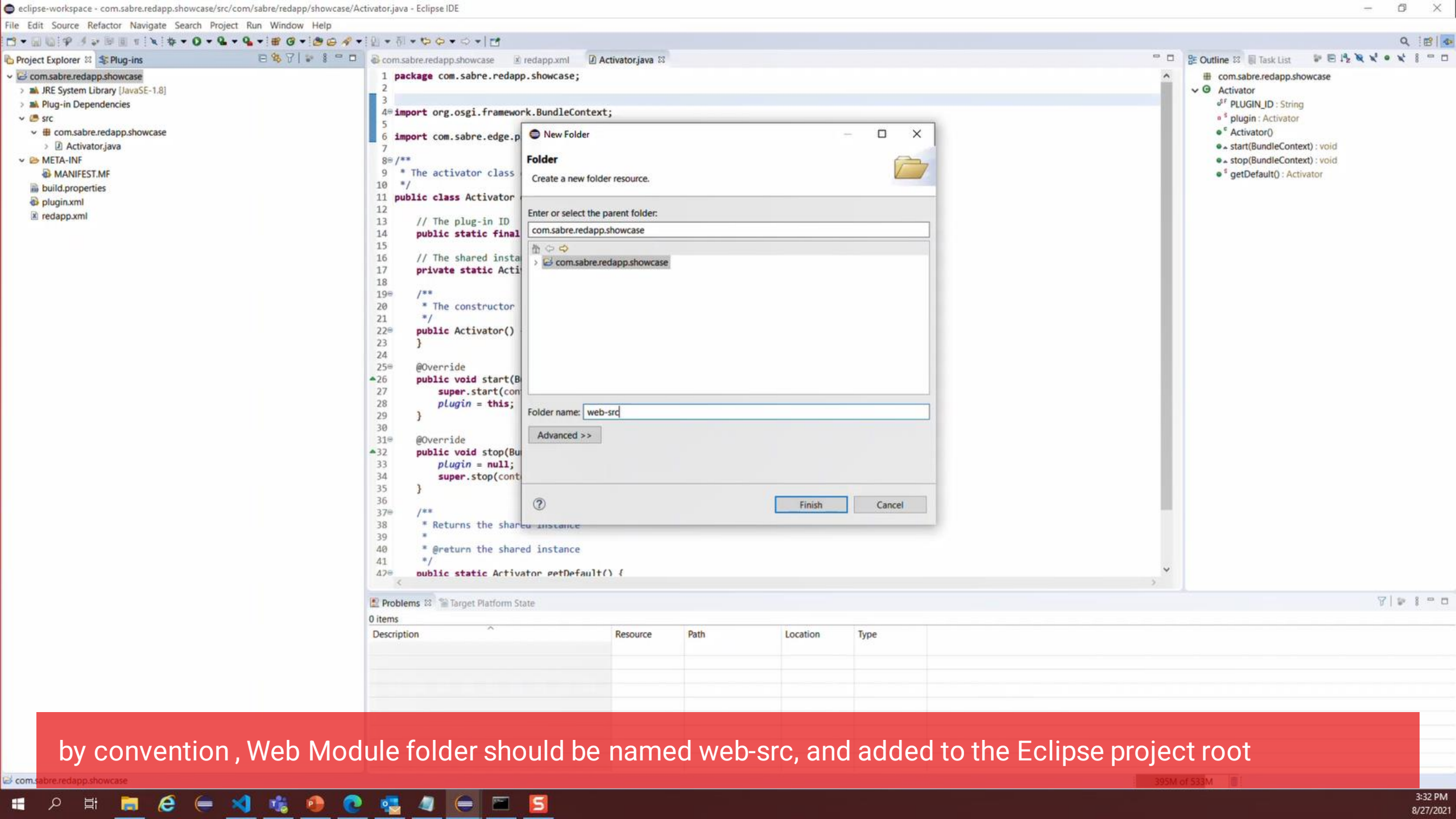
Run / Debug Red Apps

Sabre Red 360 Desktop  
Sabre Red Web

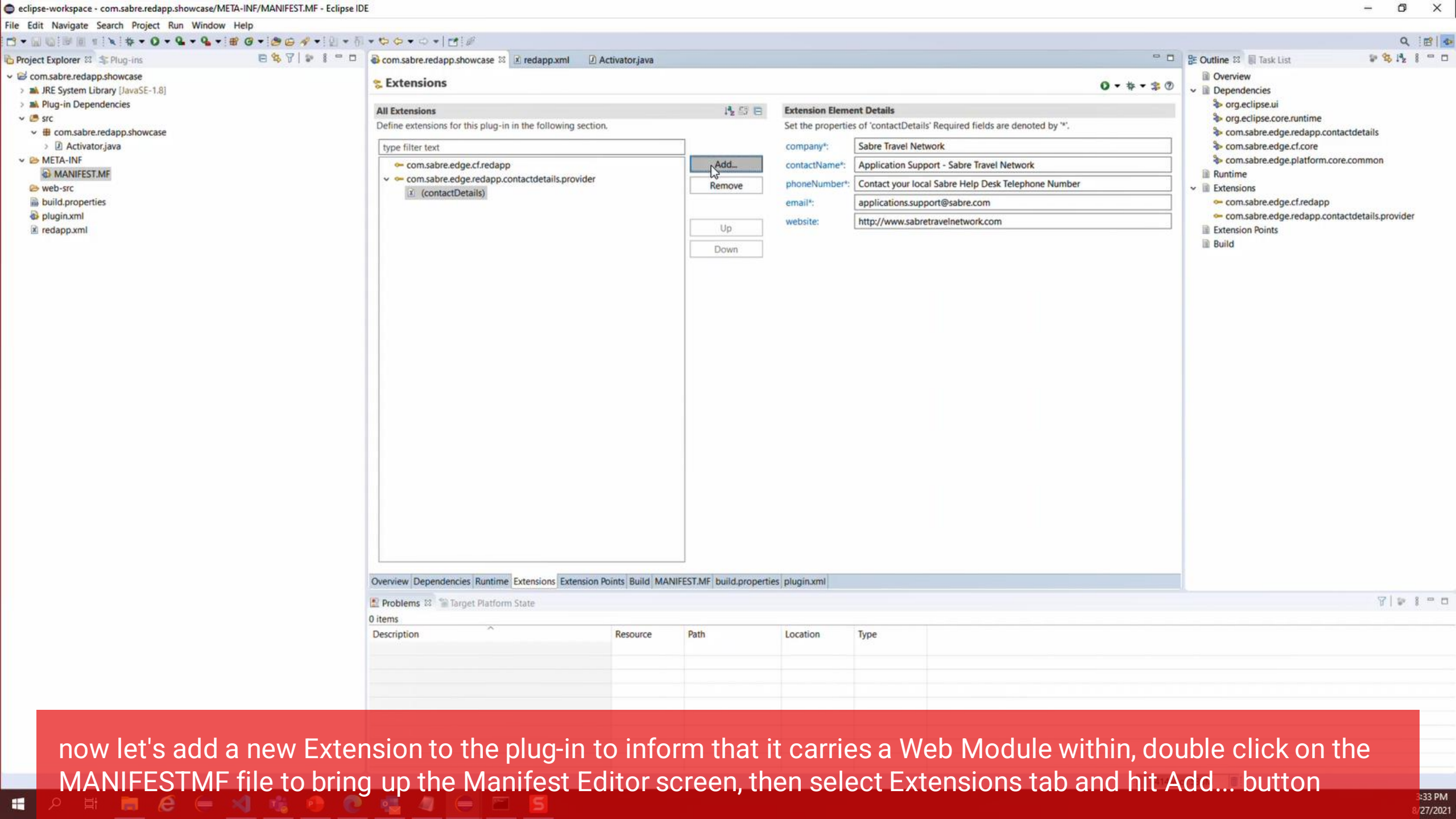




let's create a folder to hold Web Module source code, select File->New->Folder menu

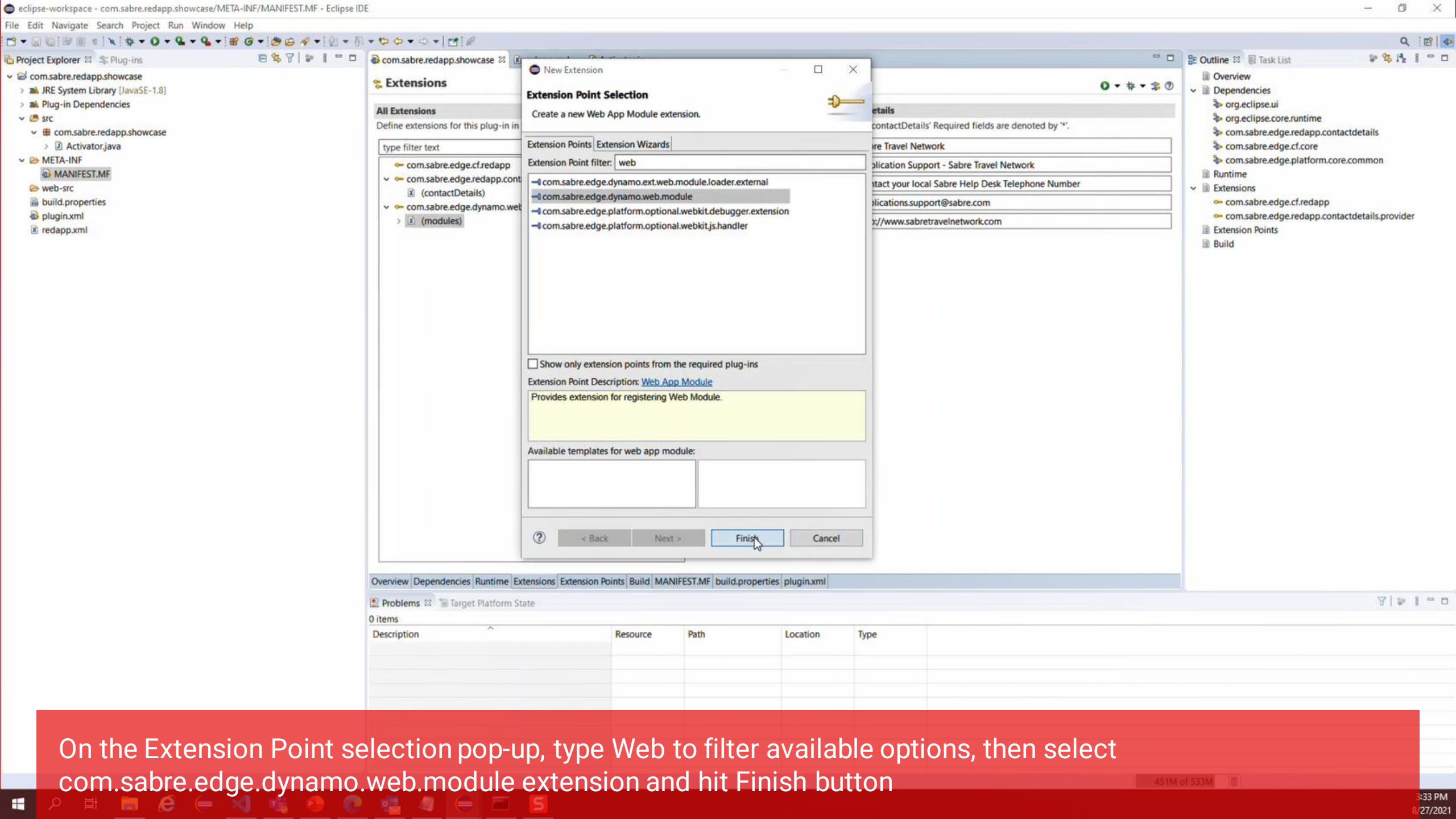


by convention , Web Module folder should be named web-src, and added to the Eclipse project root



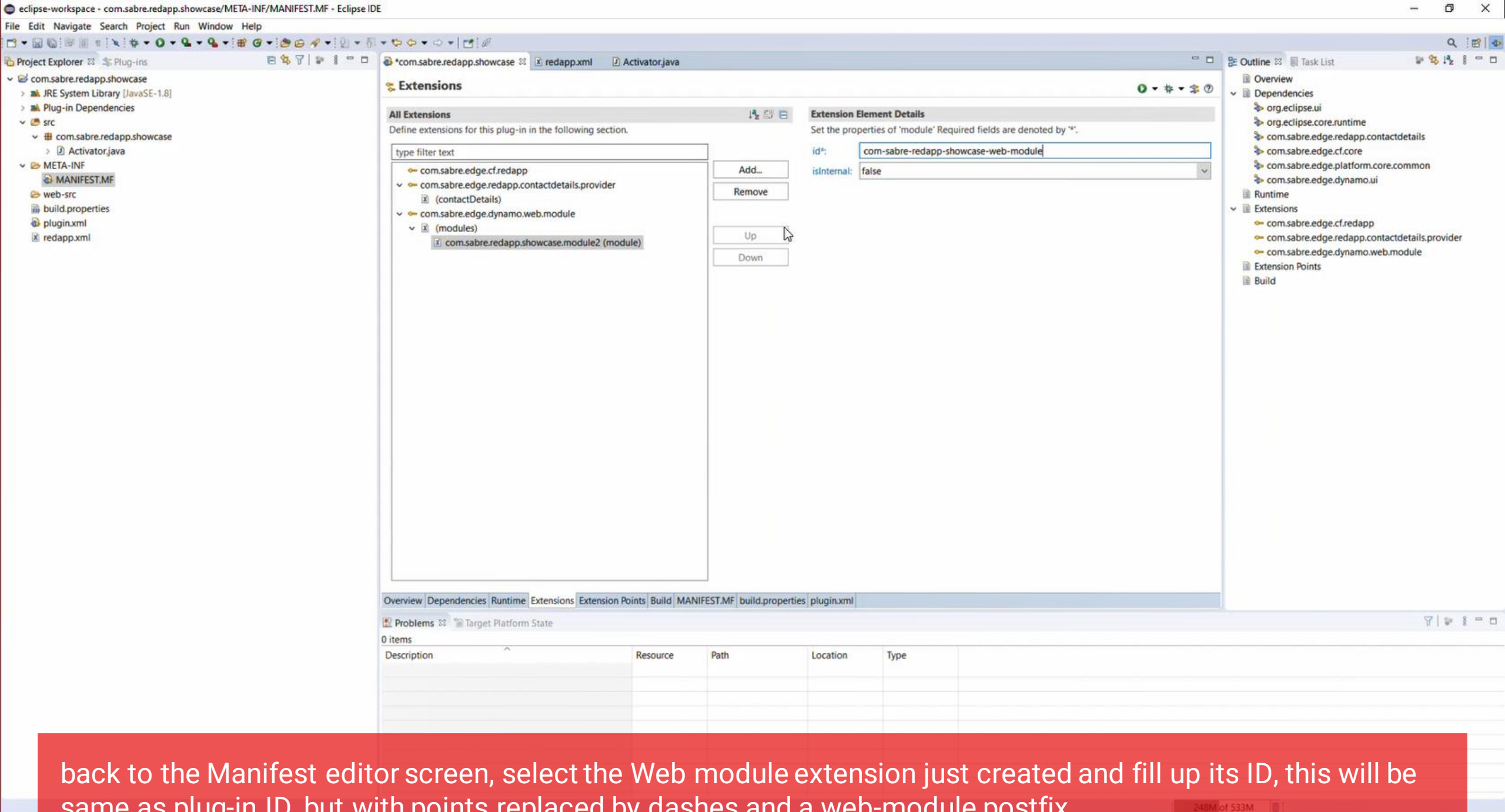
now let's add a new Extension to the plug-in to inform that it carries a Web Module within, double click on the MANIFEST.MF file to bring up the Manifest Editor screen, then select Extensions tab and hit Add... button



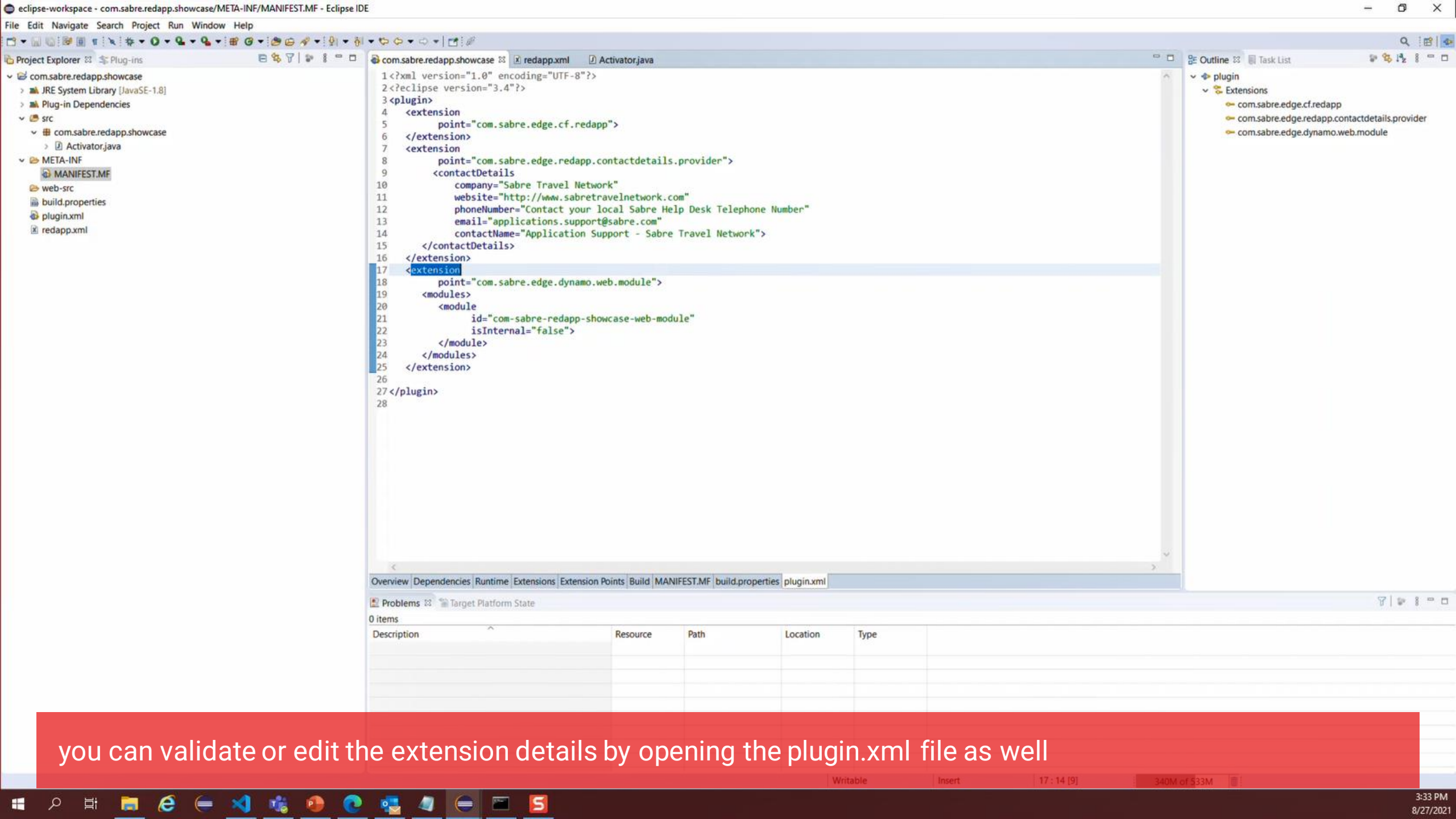


On the Extension Point selection pop-up, type Web to filter available options, then select com.sabre.edge.dynamo.web.module extension and hit Finish button

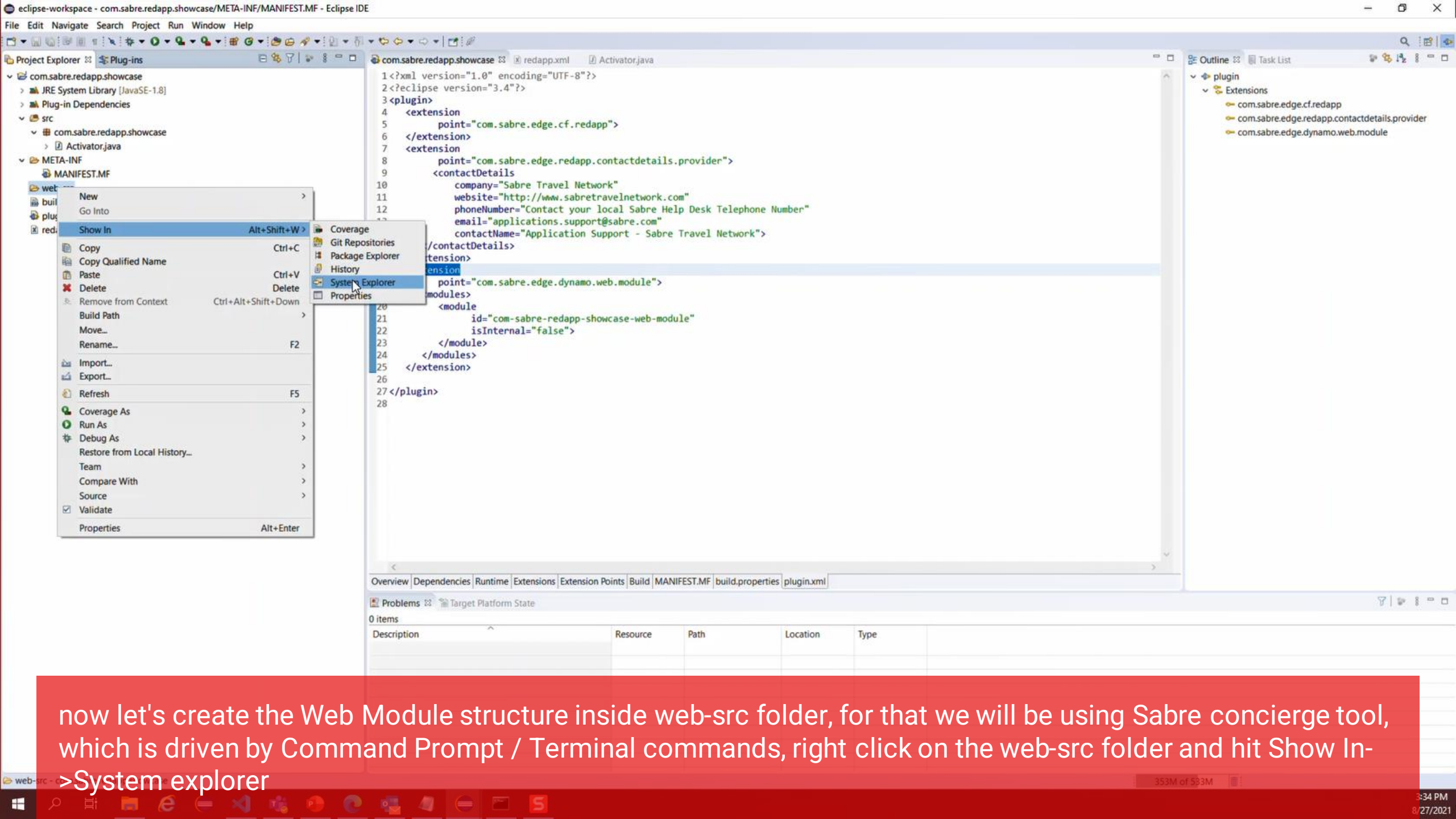




back to the Manifest editor screen, select the Web module extension just created and fill up its ID, this will be same as plug-in ID, but with points replaced by dashes and a web-module postfix

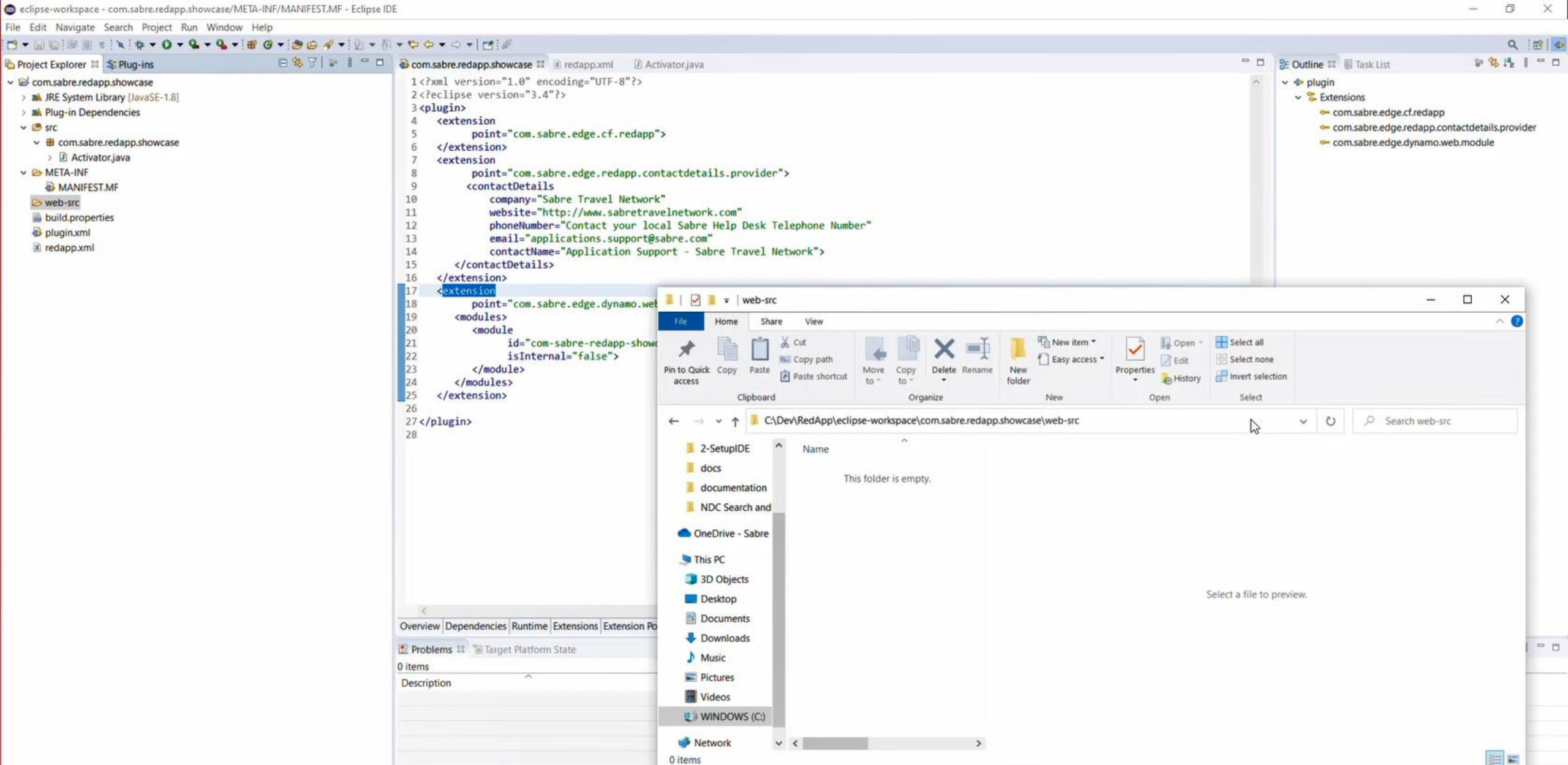


you can validate or edit the extension details by opening the plugin.xml file as well



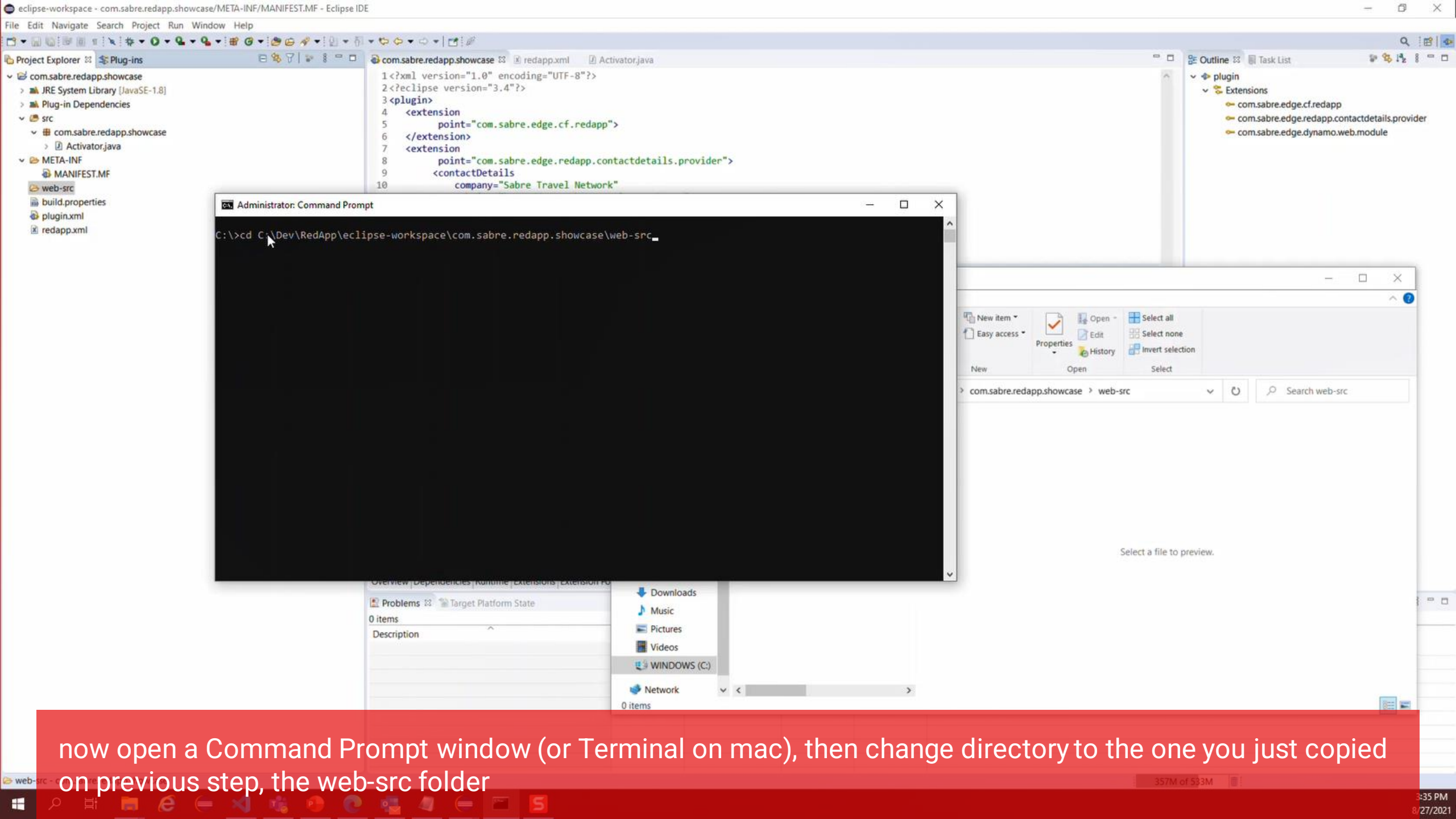
now let's create the Web Module structure inside web-src folder, for that we will be using Sabre concierge tool, which is driven by Command Prompt / Terminal commands, right click on the web-src folder and hit Show In->System explorer



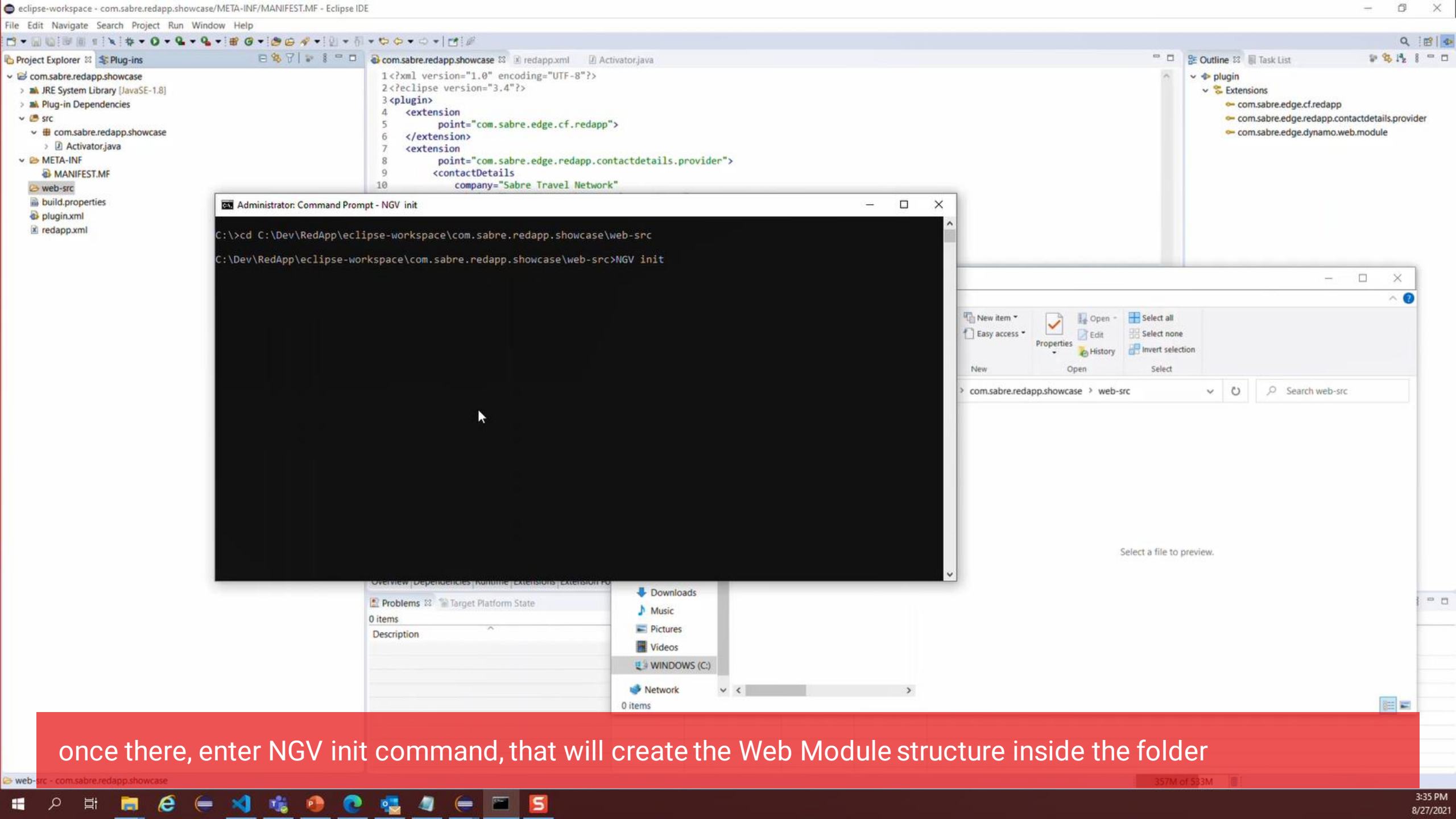


we want to copy the complete path of the web-src folder to the clipboard

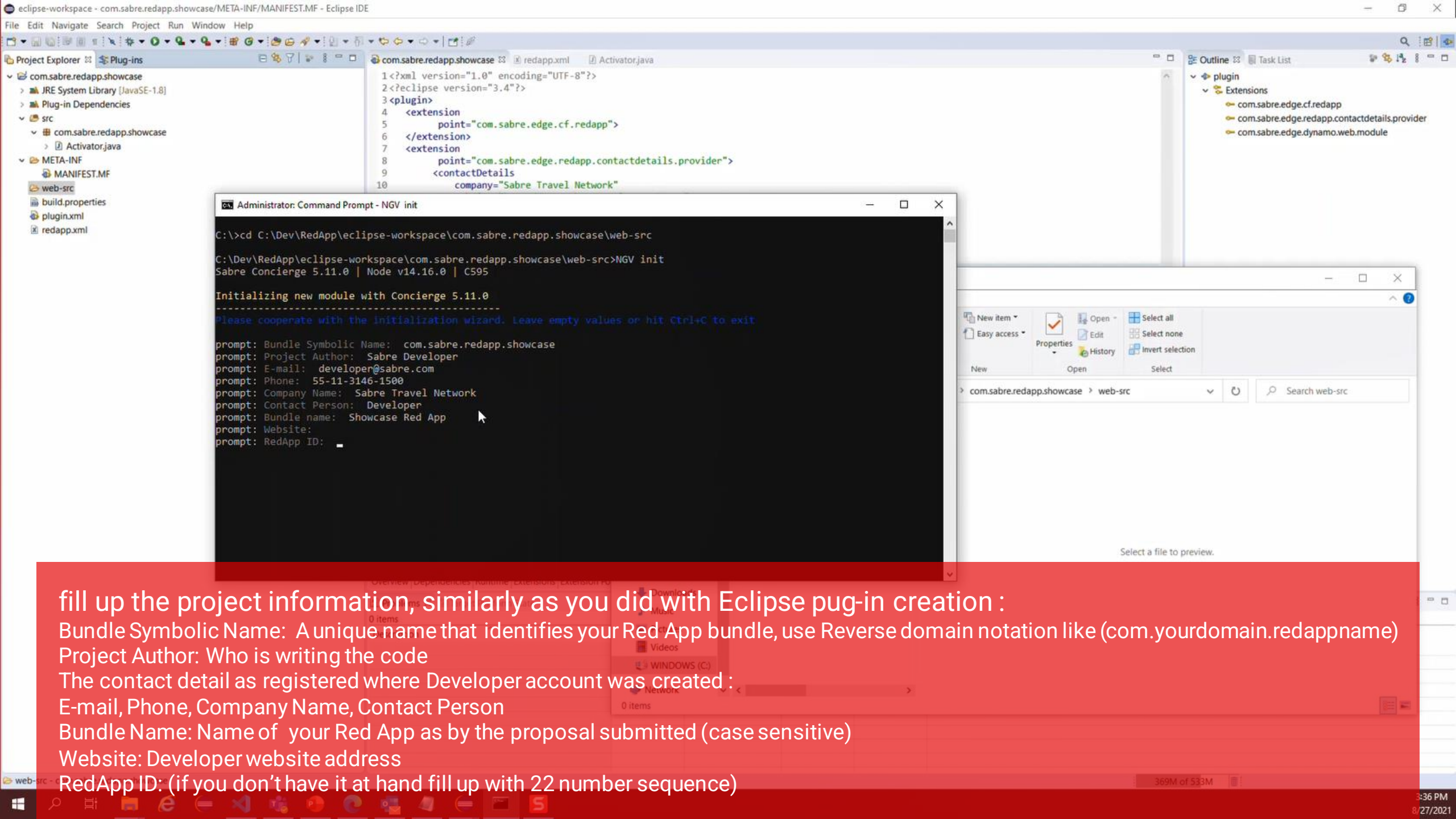




now open a Command Prompt window (or Terminal on mac), then change directory to the one you just copied on previous step, the web-src folder



once there, enter NGV init command, that will create the Web Module structure inside the folder



fill up the project information, similarly as you did with Eclipse pug-in creation :

Bundle Symbolic Name: A unique name that identifies your Red App bundle, use Reverse domain notation like (com.yourdomain.redappname)

Project Author: Who is writing the code

The contact detail as registered where Developer account was created :

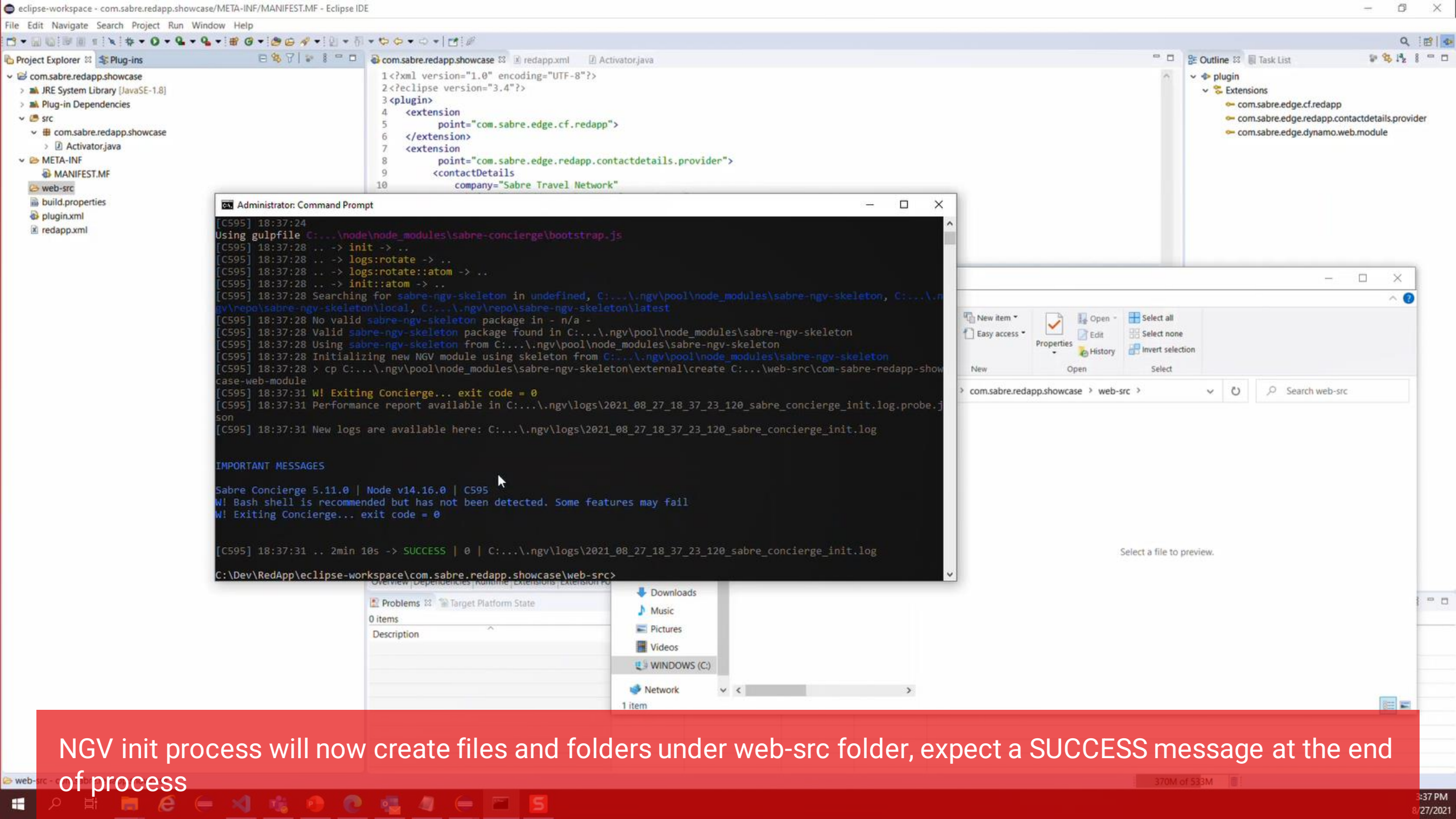
E-mail, Phone, Company Name, Contact Person

Bundle Name: Name of your Red App as by the proposal submitted (case sensitive)

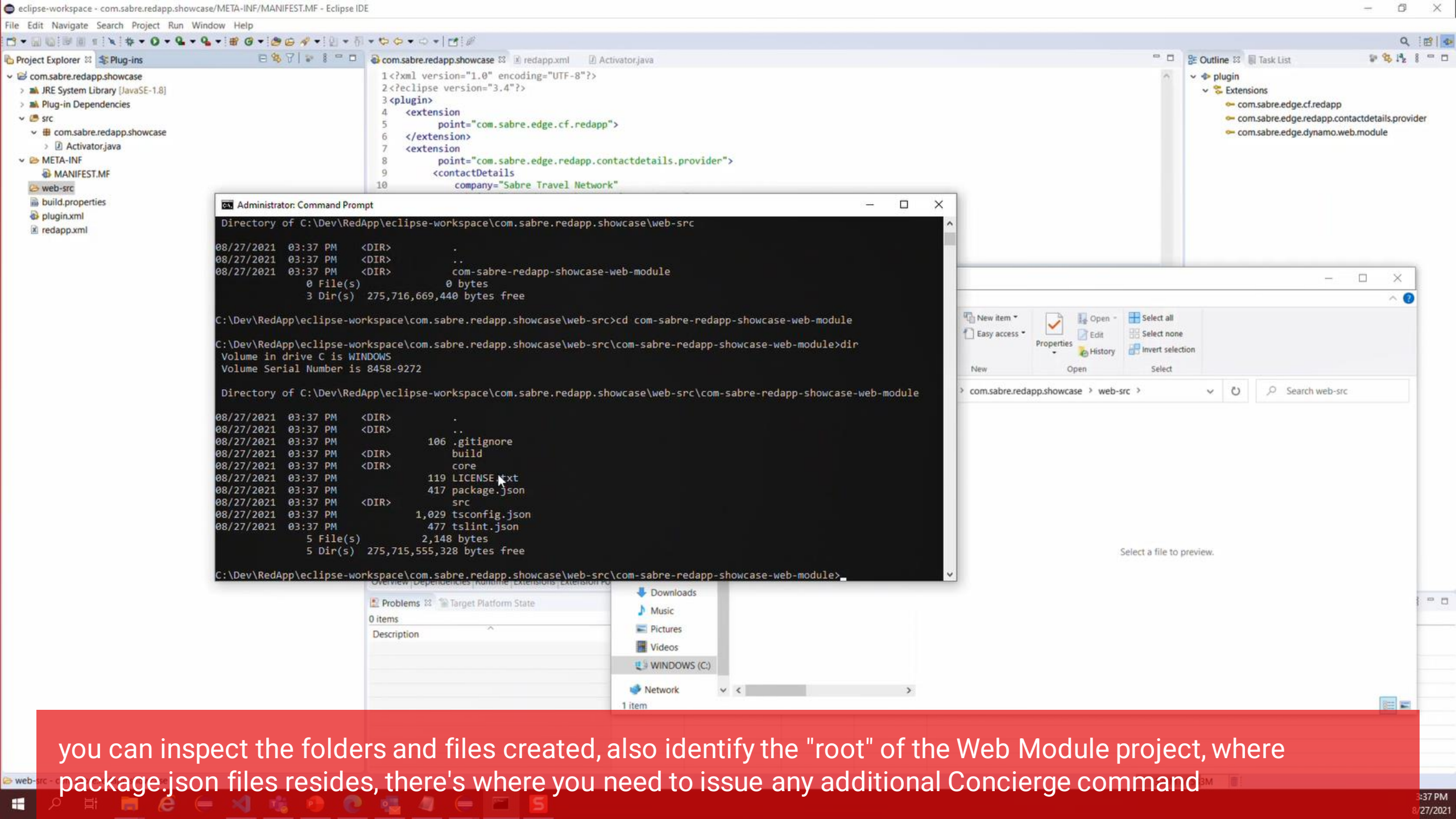
Website: Developer website address

RedApp ID: (if you don't have it at hand fill up with 22 number sequence)

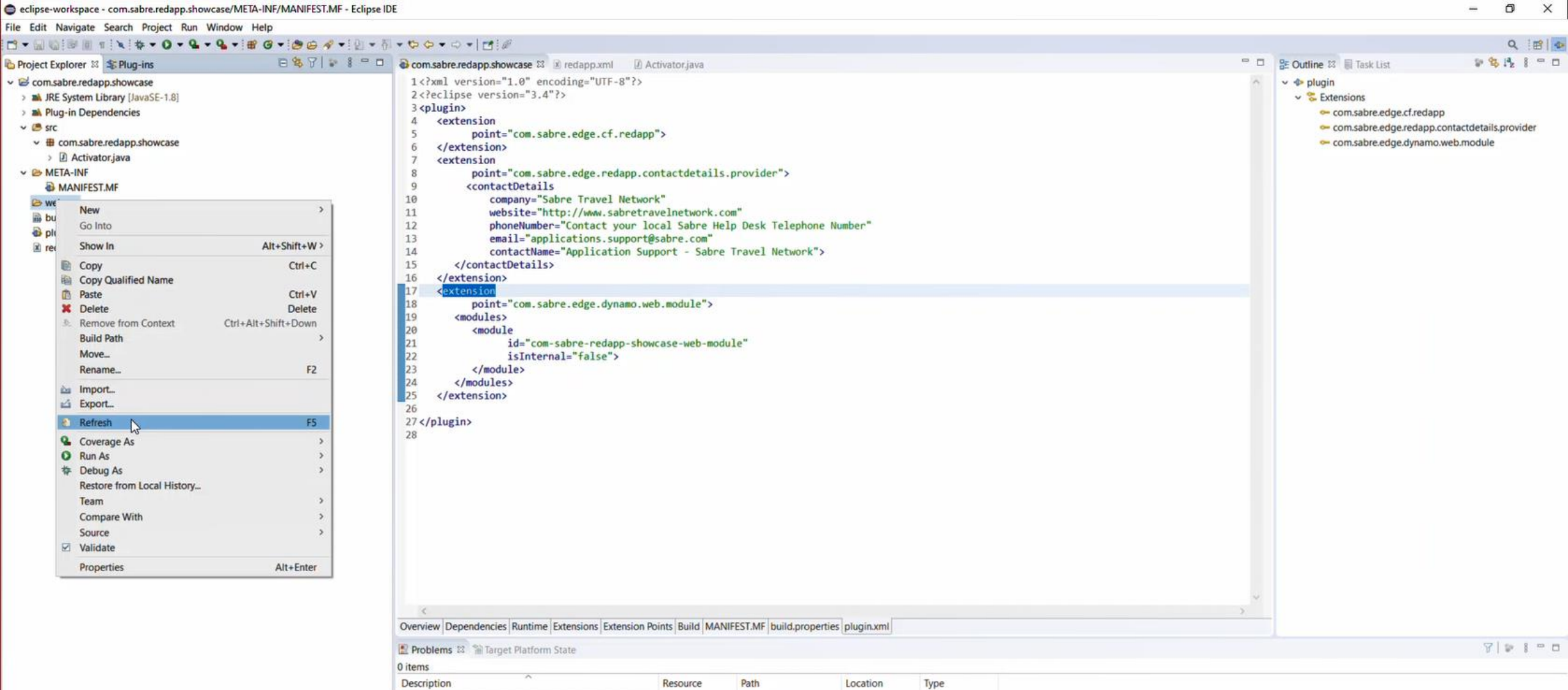




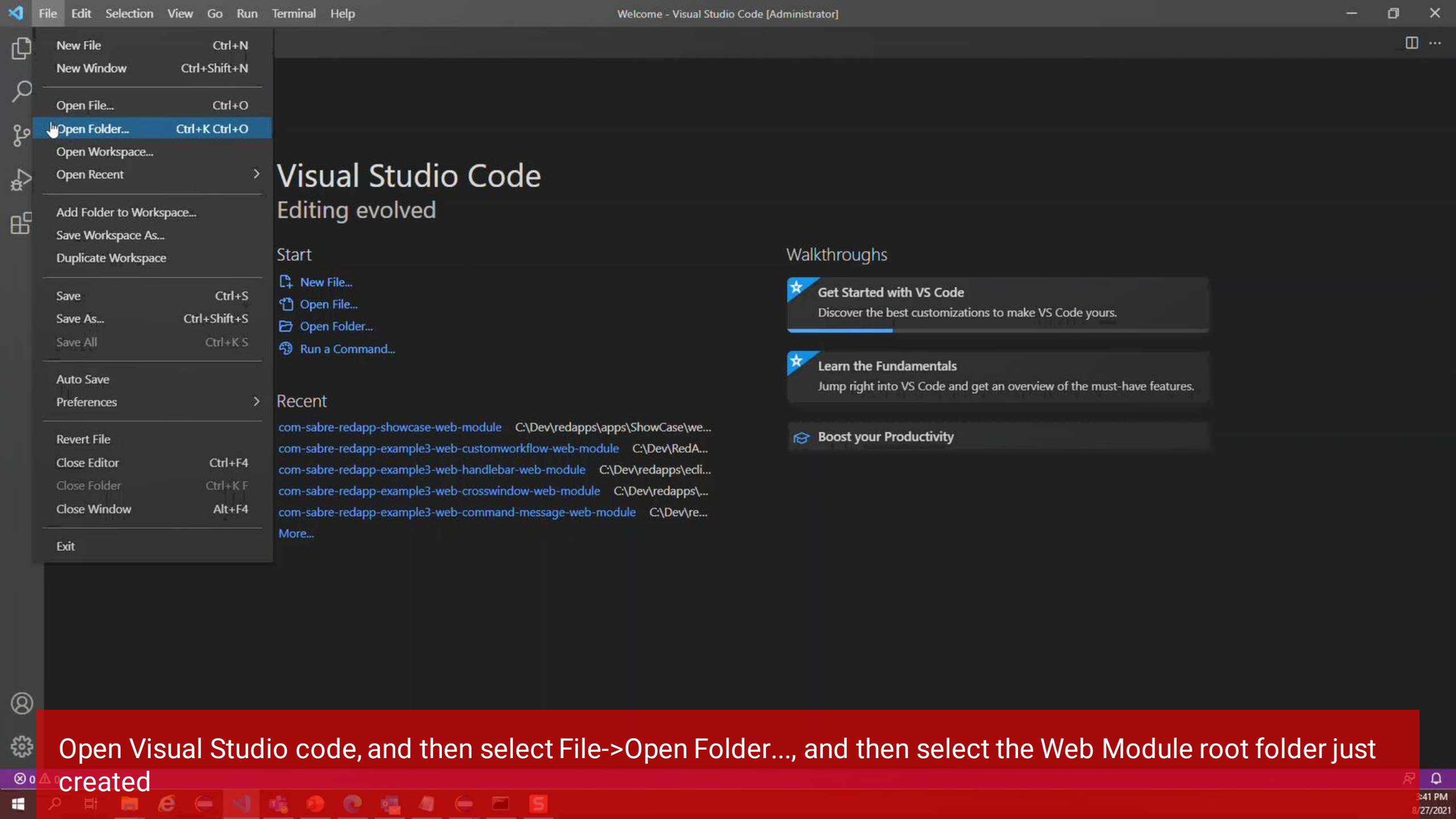




you can inspect the folders and files created, also identify the "root" of the Web Module project, where package.json files reside, there's where you need to issue any additional Concierge command



back to Eclipse IDE, just right click on web-src folder and hit Refresh (or F5) to show newly created files, From now it's matter of preference, we recommend using Visual Studio code to build your Web Red Apps, but you also may have other developer tools like IntelliJ or add-ons to the Eclipse IDE that suits well Web development languages.



- New File Ctrl+N
- New Window Ctrl+Shift+N
- Open File... Ctrl+O
- Open Folder... Ctrl+K Ctrl+O**
- Open Workspace...
- Open Recent >
- Add Folder to Workspace...
- Save Workspace As...
- Duplicate Workspace
- Save Ctrl+S
- Save As... Ctrl+Shift+S
- Save All Ctrl+K S
- Auto Save
- Preferences >
- Revert File
- Close Editor Ctrl+F4
- Close Folder Ctrl+K F
- Close Window Alt+F4
- Exit

# Visual Studio Code

## Editing evolved

### Start

- New File...
- Open File...
- Open Folder...
- Run a Command...

### Recent

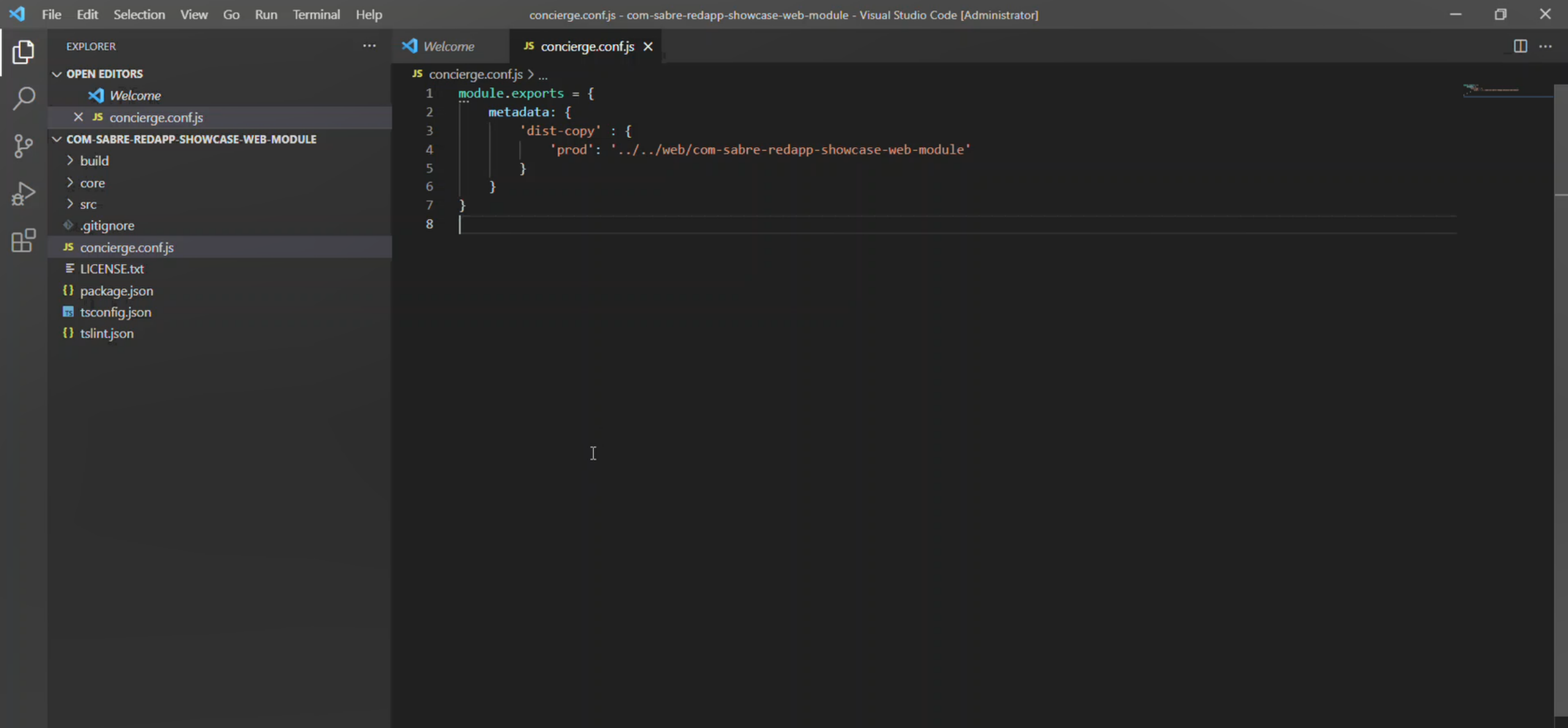
- com-sabre-redapp-showcase-web-module C:\Dev\redapps\apps\ShowCase\we...
- com-sabre-redapp-example3-web-customworkflow-web-module C:\Dev\RedA...
- com-sabre-redapp-example3-web-handlebar-web-module C:\Dev\redapps\edli...
- com-sabre-redapp-example3-web-crosswindow-web-module C:\Dev\redapps\...
- com-sabre-redapp-example3-web-command-message-web-module C:\Dev\re...
- More...

### Walkthroughs

- Get Started with VS Code**  
Discover the best customizations to make VS Code yours.
- Learn the Fundamentals**  
Jump right into VS Code and get an overview of the must-have features.
- Boost your Productivity**

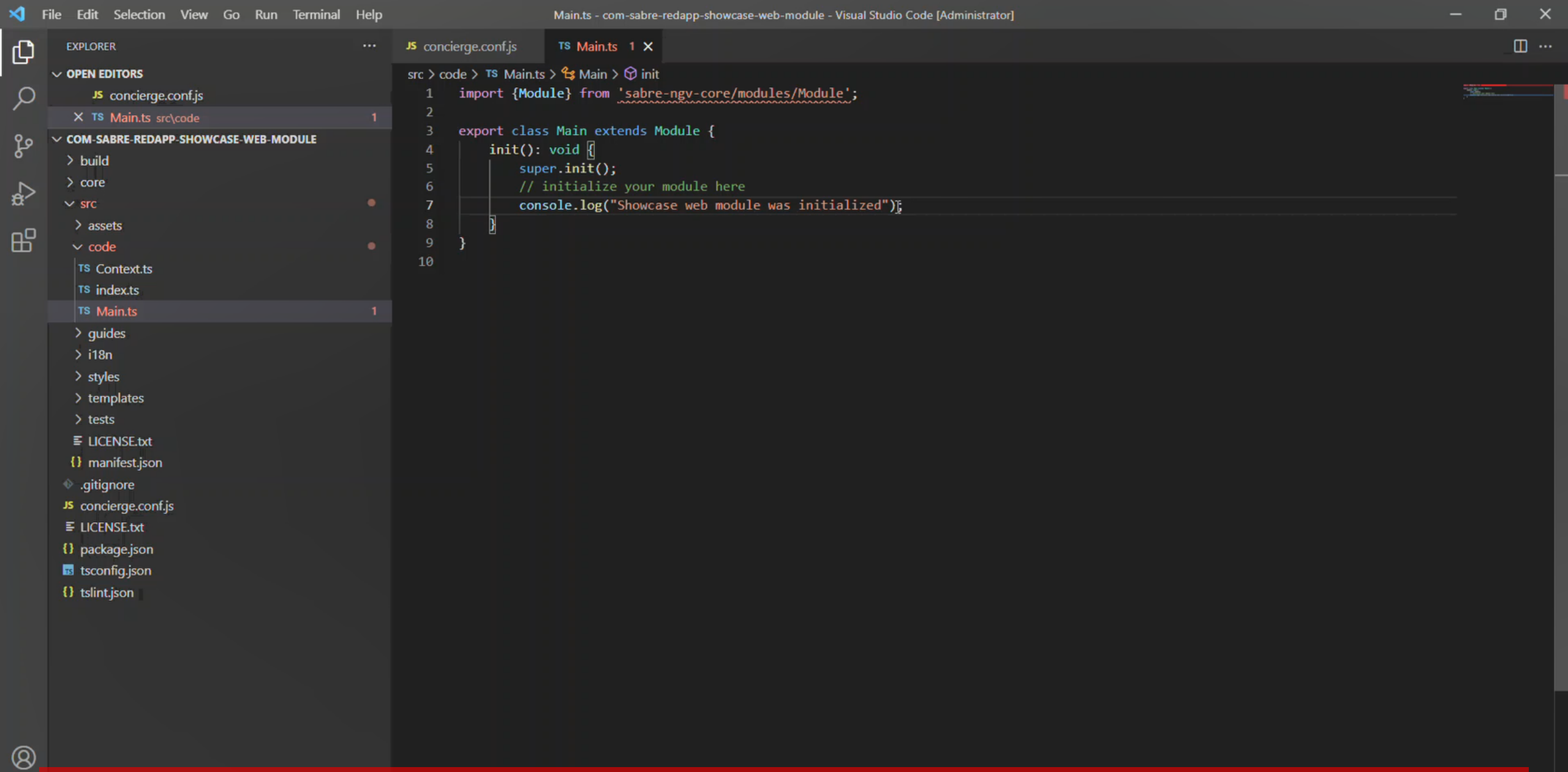
Open Visual Studio code, and then select File->Open Folder..., and then select the Web Module root folder just created



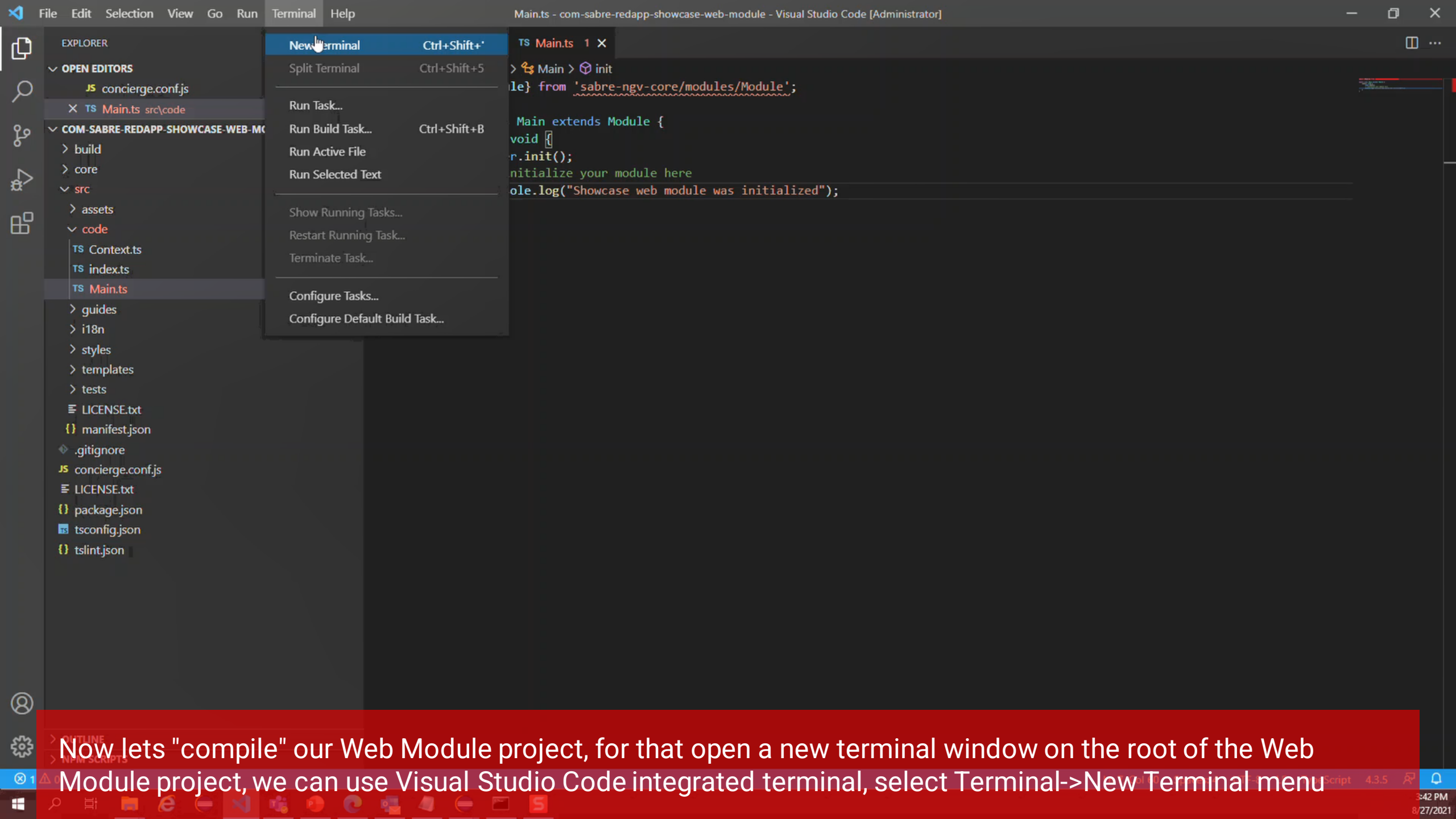


To be able to run your Web Module using Sabre Red 360 Desktop and Eclipse IDE, you need to create a `concierge.conf.js` on the root of WebModule folder, and add the information above, this will copy all Web Module files during build process to the web folder, which will be used during runtime to serve the WebModule

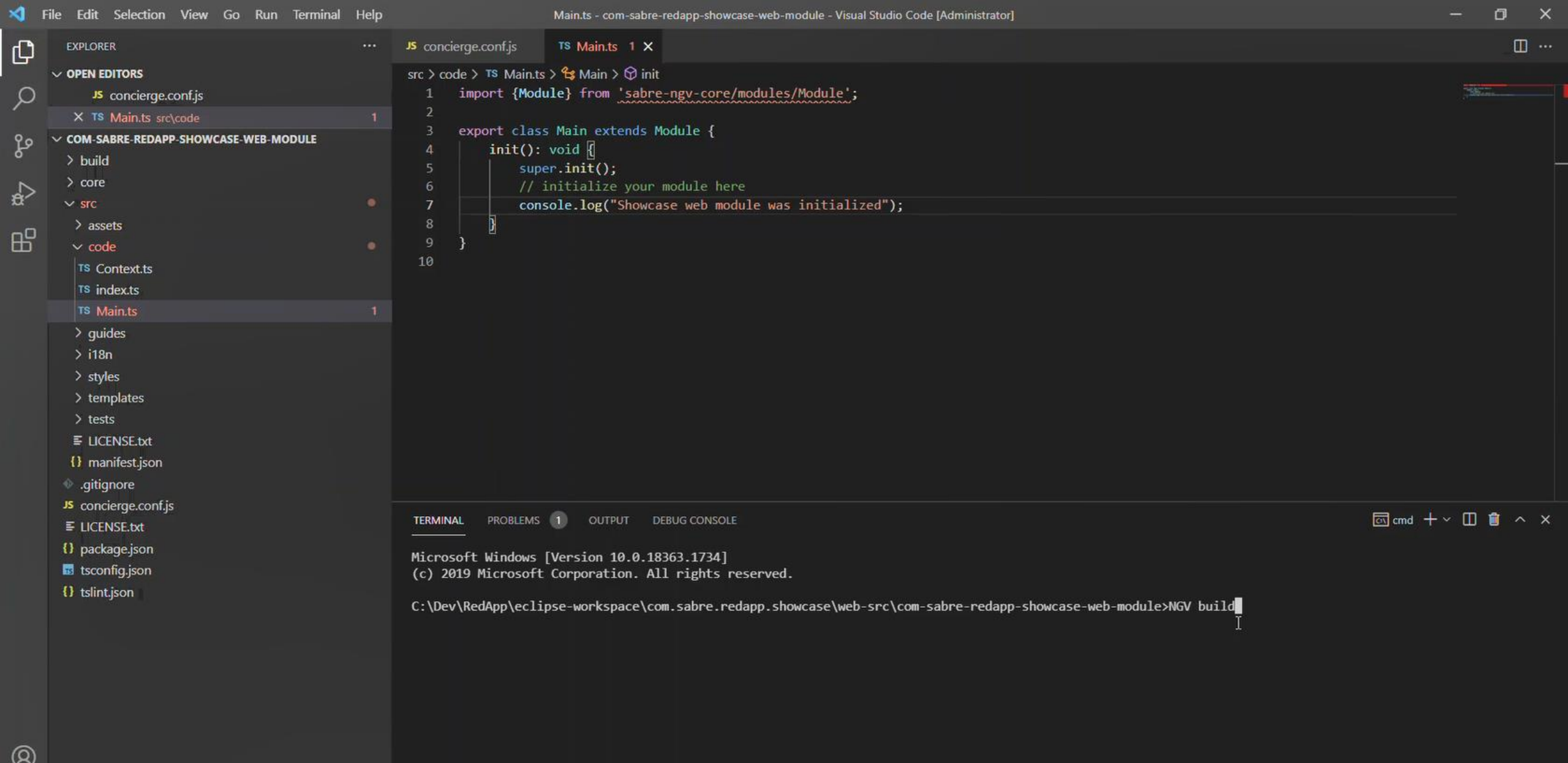




Get familiar with Web Module project structure, special attention to the Main.ts file, which is initialized during Sabre Red 360 startup.



Now lets "compile" our Web Module project, for that open a new terminal window on the root of the Web Module project, we can use Visual Studio Code integrated terminal, select Terminal->New Terminal menu



on the command prompt enter NGV build command, this will "compile" the Typescript source code into JavaScript, which will be used at runtime by Sabre Red 360

Visual Studio Code interface showing the Explorer, Editor, and Terminal panels.

**Explorer:** Displays the file structure of the project, including folders like `build`, `core`, `node_modules`, `src`, `assets`, `code`, `guides`, `i18n`, `styles`, `templates`, `tests`, and files like `LICENSE.txt`, `manifest.json`, `.gitignore`, `conciierge.conf.js`, `LICENSE.txt`, `package.json`, `tsconfig.json`, and `tslint.json`.

**Editor:** Shows the `TS Main.ts` file with the following code:

```
src > code > TS Main.ts > Main > init
1 import {Module} from 'sabre-ngv-core/modules/Module';
2
3 export class Main extends Module {
4     init(): void {
5         super.init();
6         // initialize your module here
7         console.log("Showcase web module was initialized");
8     }
9 }
10
```

**Terminal:** Displays the output of the build process, including warnings and instructions.

```
W! Warning: The 'no-unsafe-any' rule requires type information.
W! Use --git-pool flag to enable git-pool features

It is recommended to set Max Old Space Size to at least 4096 MB. Otherwise process may run out of memory.

Windows example:
set NODE_OPTIONS=--max-old-space-size=4096

Bash example:
export NODE_OPTIONS=--max-old-space-size=4096
```

Now you should be able to test run your Red App and the Web module, here you have freedom to choose which environment to run with, Sabre Red 360 Desktop (Eclipse) or Sabre Red Web (Web Browser)...





# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Build and Debug Red Apps



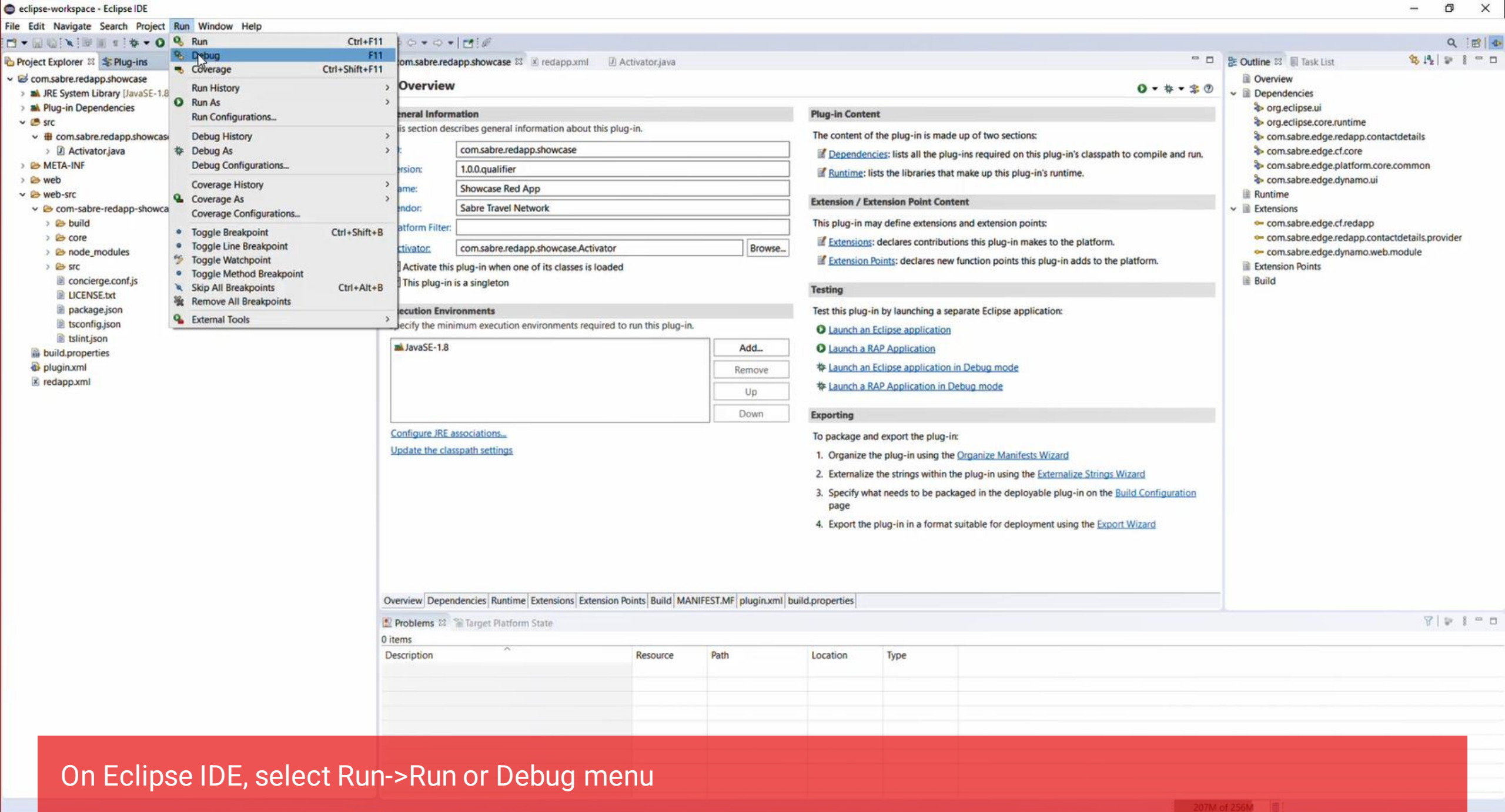
Build Red Apps

Basic Red App project structure  
Web Module project structure



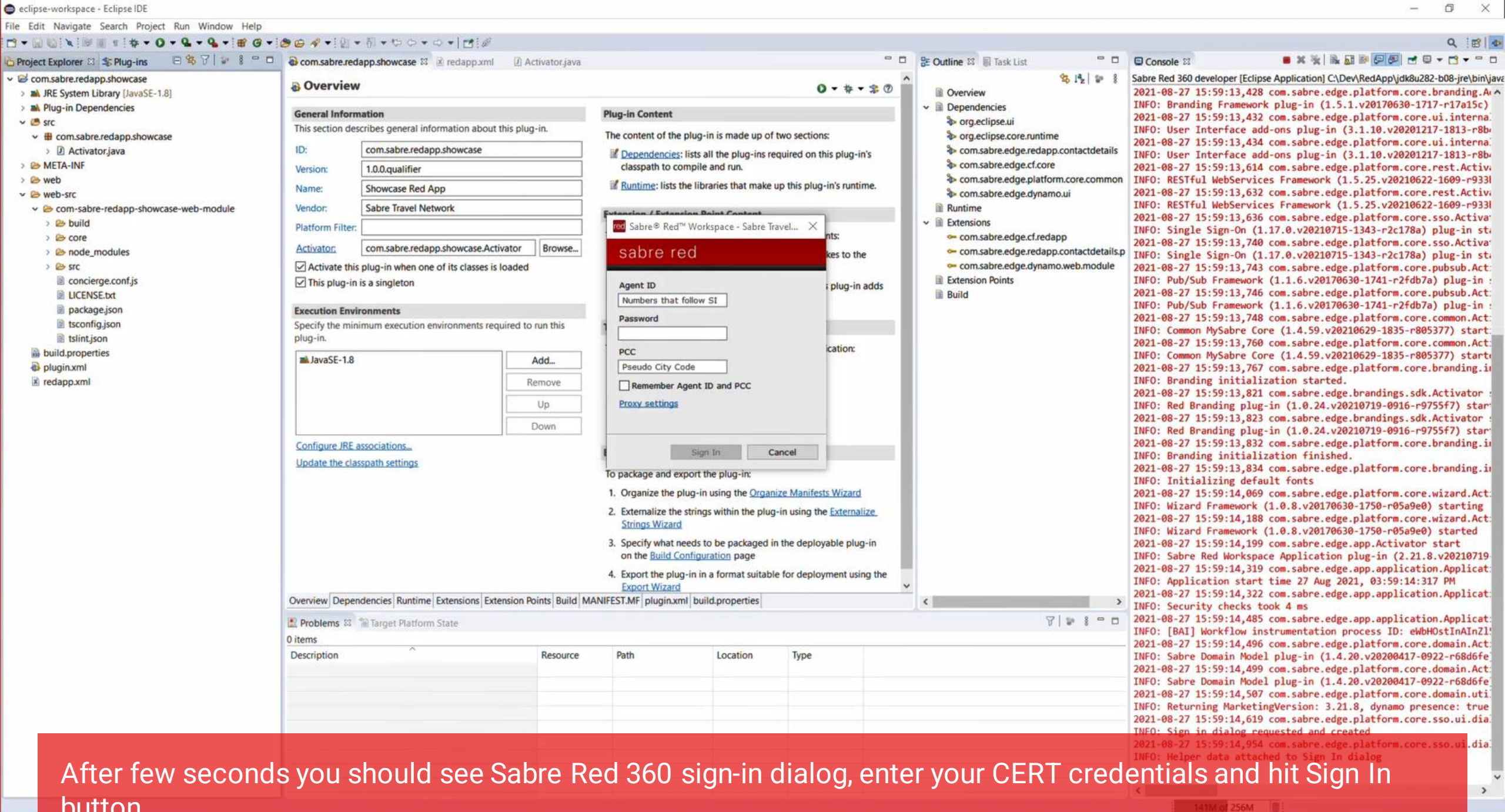
Run / Debug Red Apps

Sabre Red 360 Desktop

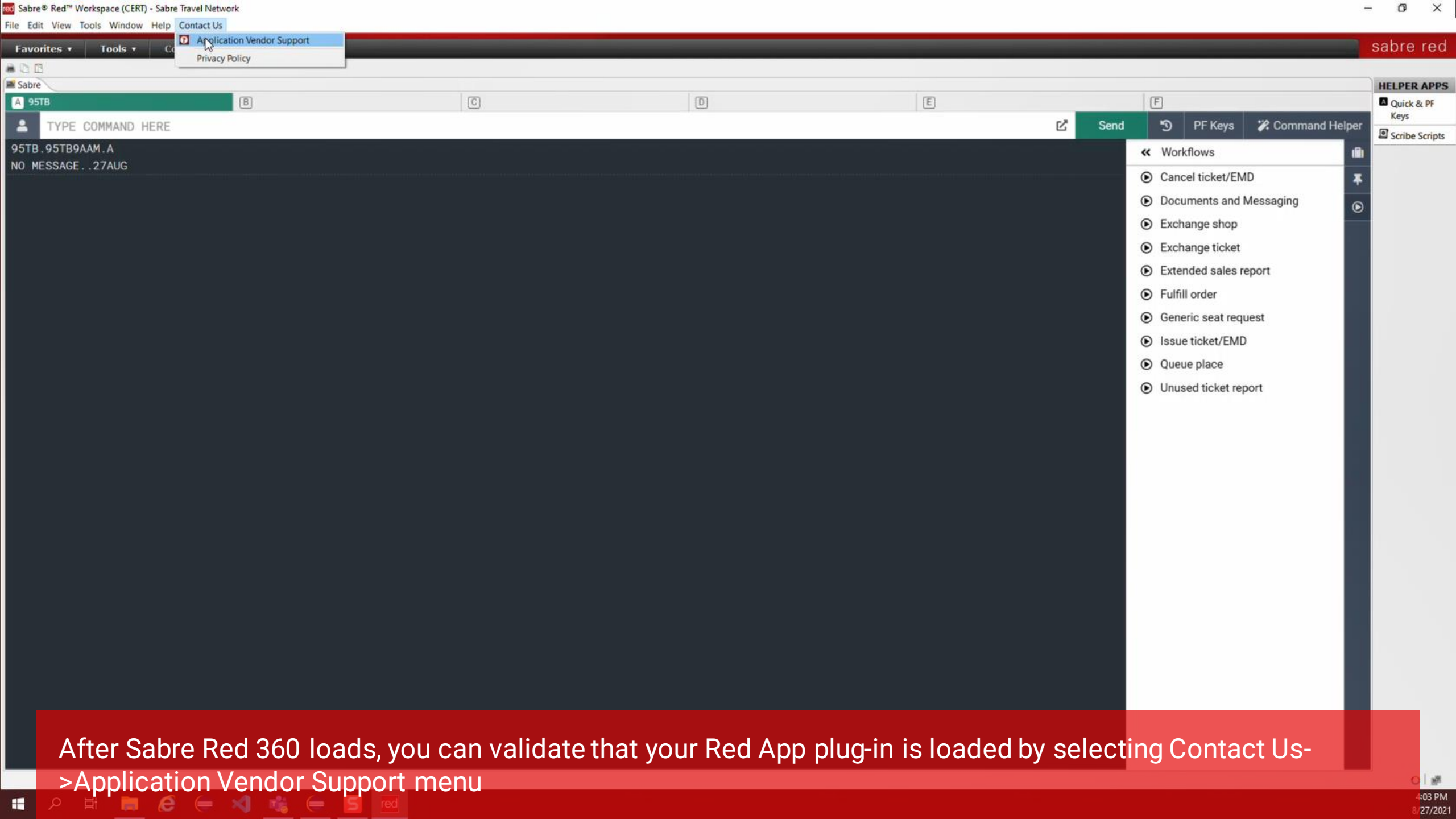


On Eclipse IDE, select Run->Run or Debug menu





After few seconds you should see Sabre Red 360 sign-in dialog, enter your CERT credentials and hit Sign In button



After Sabre Red 360 loads, you can validate that your Red App plug-in is loaded by selecting Contact Us->Application Vendor Support menu



95TB.95TB9AAM.A  
NO MESSAGE..27AUG

Application Vendor Support

Showcase Red App

Contact Details

Contact Name Application Support - Sabre Travel Network

Company Sabre Travel Network

E-mail applications.support@sabre.com

Phone Number Contact your local Sabre Help Desk Teleph

Website <http://www.sabretravelnetwork.com>

Plug-in ID com.sabre.redapp.showcase

Plug-in Name Showcase Red App

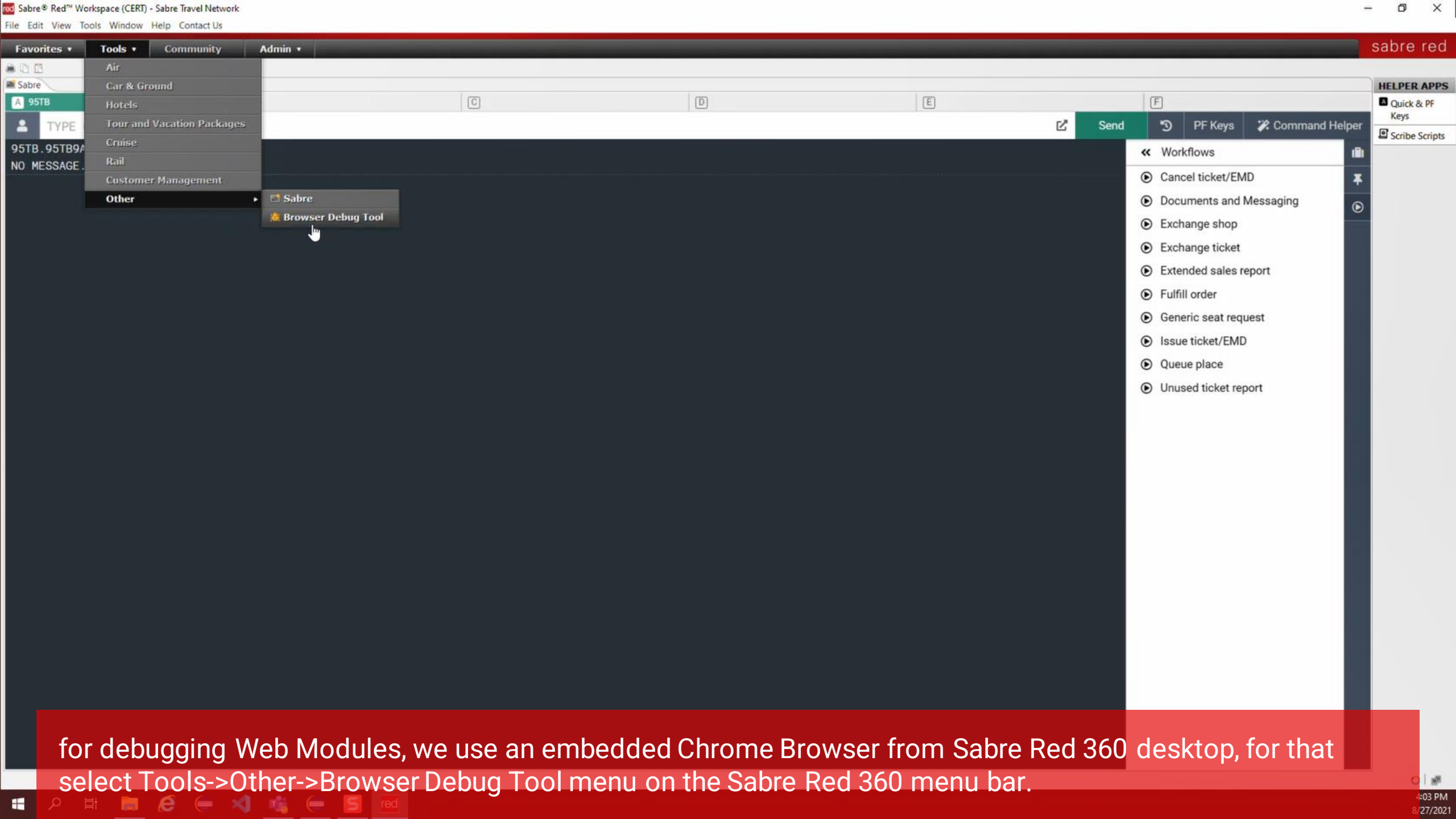
Version 1.0.0.qualifier

Close

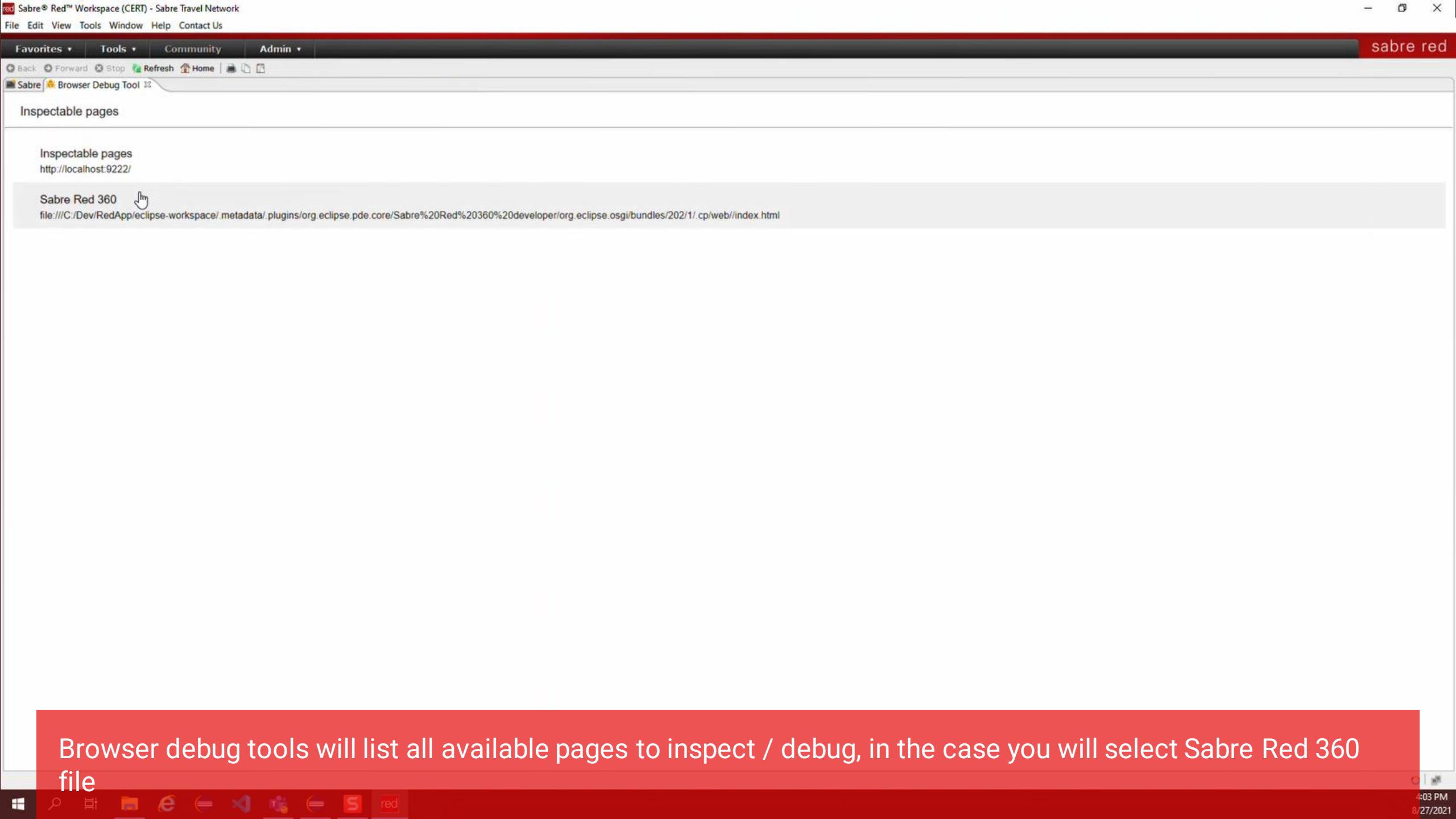
Workflows

- Cancel ticket/EMD
- Documents and Messaging
- Exchange shop
- Exchange ticket
- Extended sales report
- Fulfill order
- Generic seat request
- Issue ticket/EMD
- Queue place
- Unused ticket report

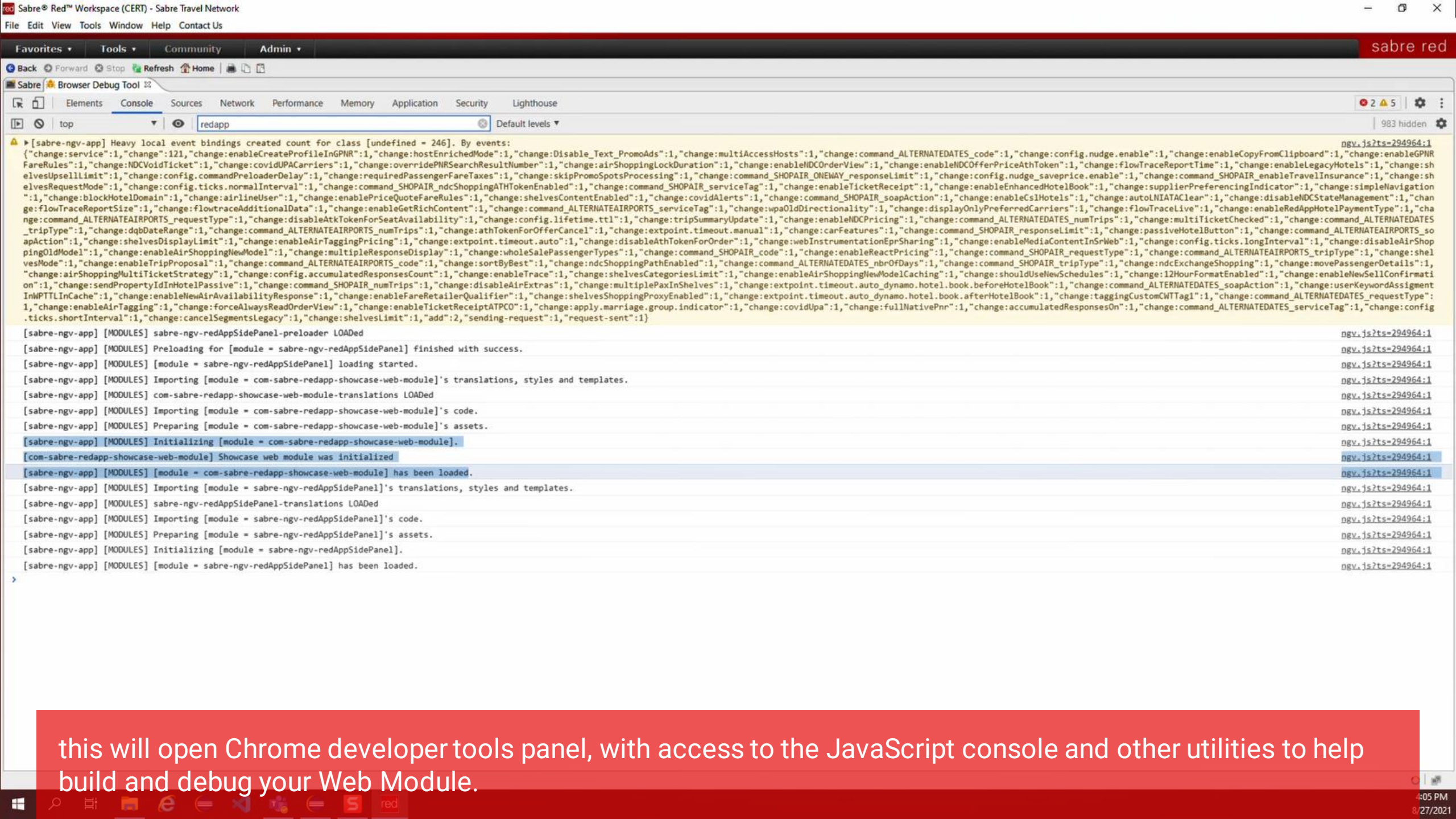
this will display all loaded Red App, including version / contact details for each one



for debugging Web Modules, we use an embedded Chrome Browser from Sabre Red 360 desktop, for that select Tools->Other->Browser Debug Tool menu on the Sabre Red 360 menu bar.



Browser debug tools will list all available pages to inspect / debug, in the case you will select Sabre Red 360 file



this will open Chrome developer tools panel, with access to the JavaScript console and other utilities to help build and debug your Web Module.





# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Build and Debug Red Apps



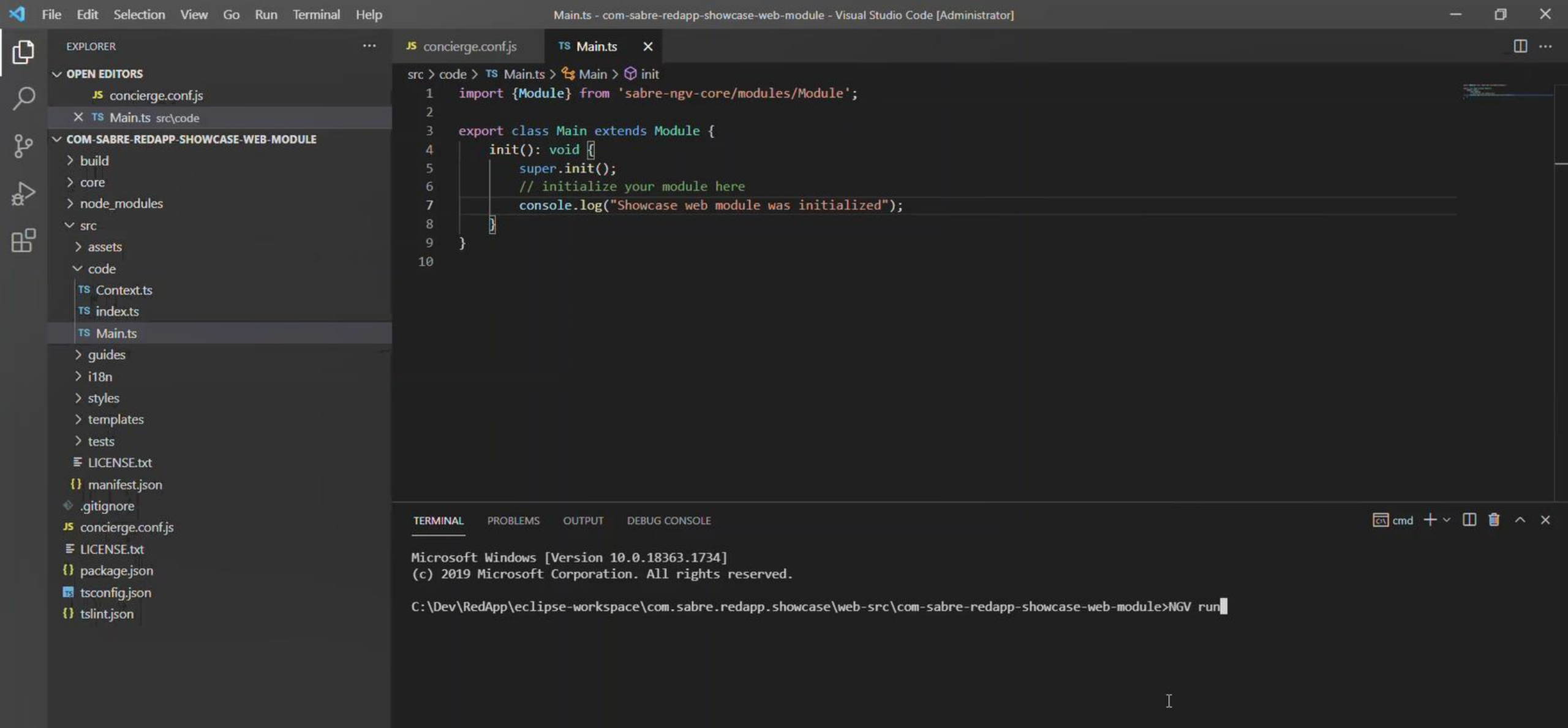
Build Red Apps

Basic Red App project structure  
Web Module project structure

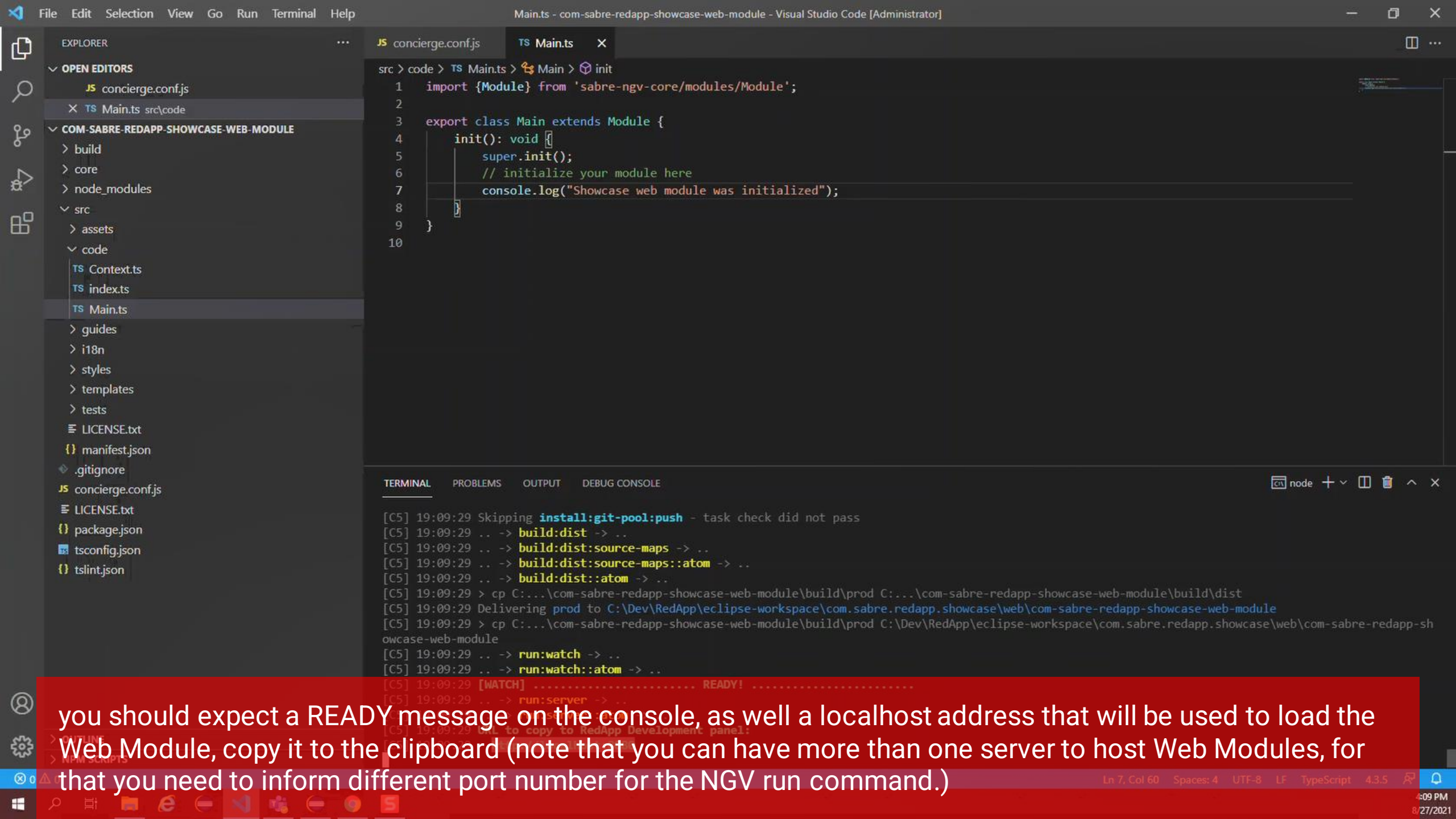


Run / Debug Red Apps

Sabre Red Web



to run a Web Module Red App on a Browser, you need to create a server that will "host" the plug-in, so it can be loaded on the developer instance of Sabre Red Web, for that open a Command prompt window at root of the Web Module project and issue a NGV run command.



you should expect a READY message on the console, as well a localhost address that will be used to load the Web Module, copy it to the clipboard (note that you can have more than one server to host Web Modules, for that you need to inform different port number for the NGV run command.)



Agent ID

Password

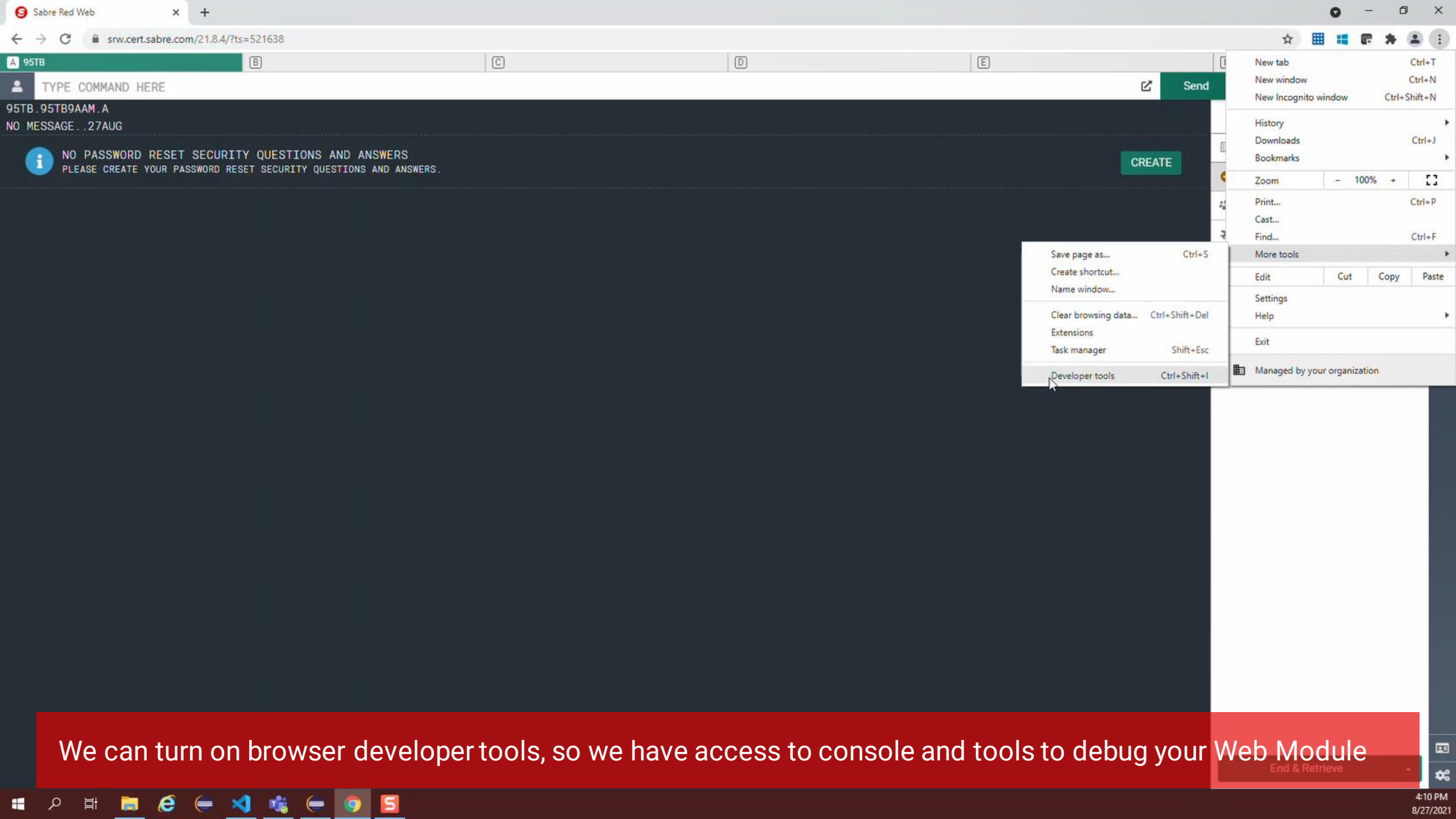
PCC

[Forgot password?](#)

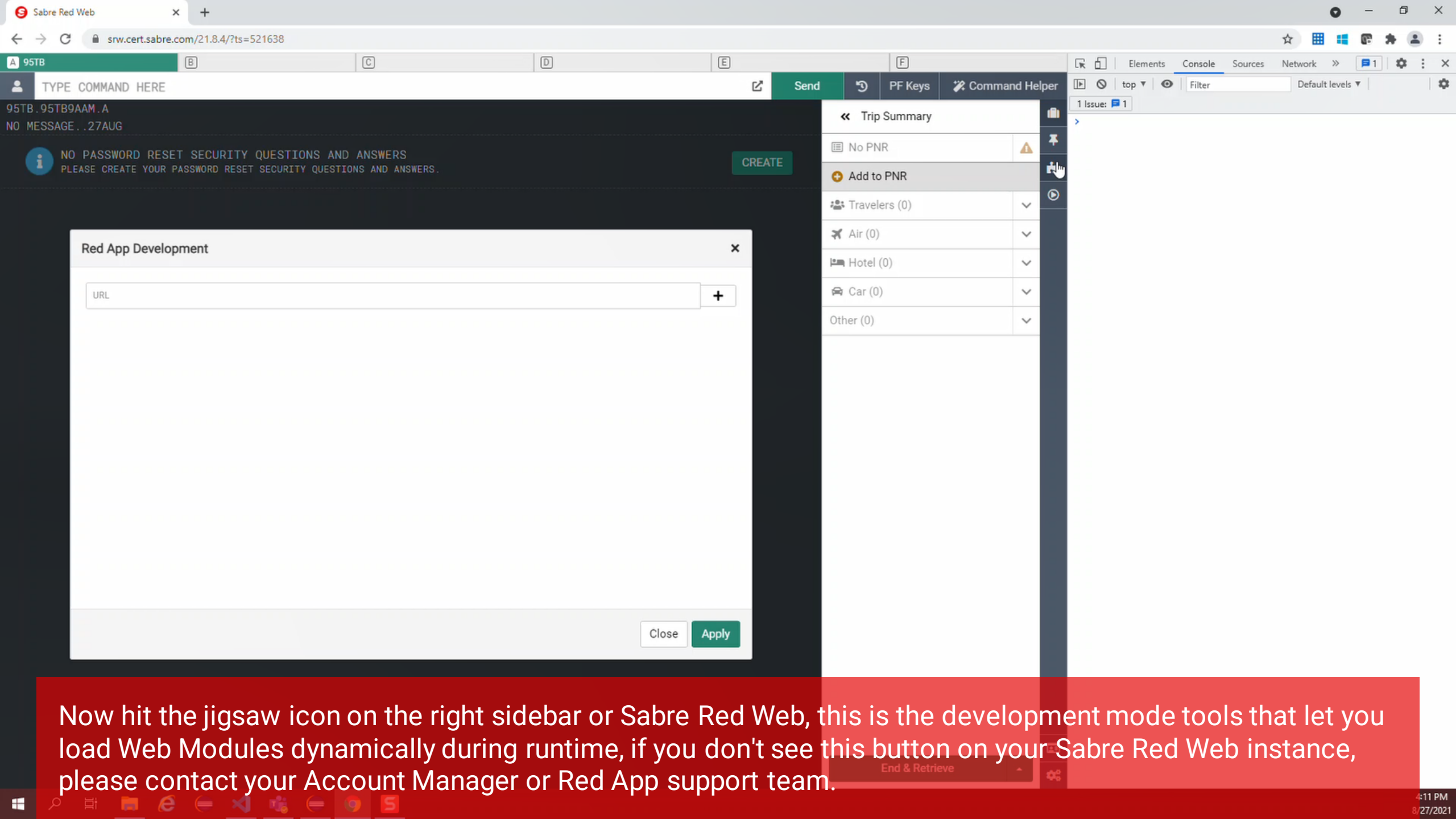
[Sign in](#)

Open you Web Browser and point to SRW.CERT.SABRE.COM, this will load Sabre Red Web and prompt for CERT credentials

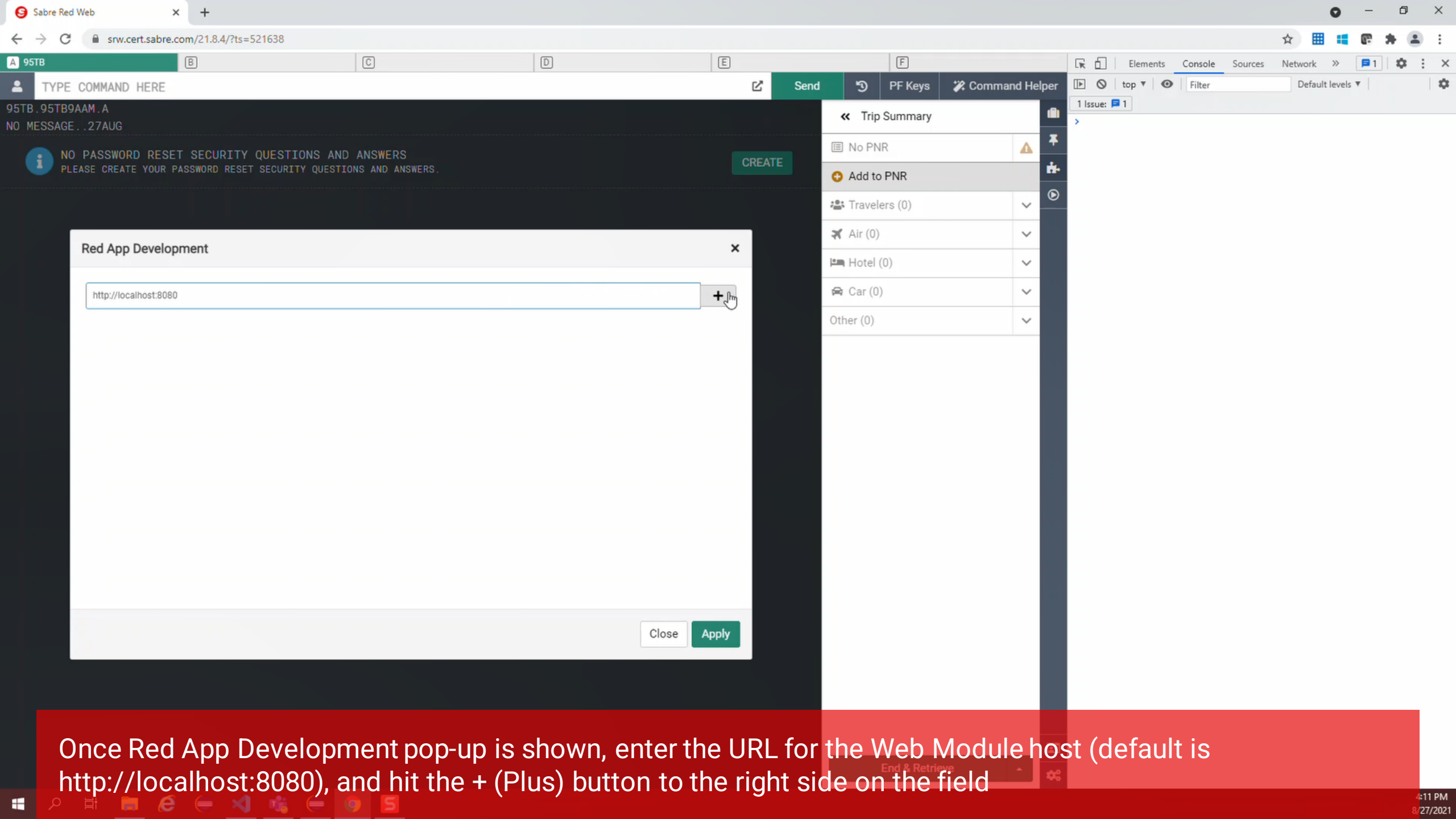




We can turn on browser developer tools, so we have access to console and tools to debug your Web Module



Now hit the jigsaw icon on the right sidebar or Sabre Red Web, this is the development mode tools that let you load Web Modules dynamically during runtime, if you don't see this button on your Sabre Red Web instance, please contact your Account Manager or Red App support team.



Once Red App Development pop-up is shown, enter the URL for the Web Module host (default is `http://localhost:8080`), and hit the + (Plus) button to the right side on the field

95TB

TYPE COMMAND HERE

95TB.95TB9AAM.A

NO MESSAGE..27AUG

NO PASSWORD RESET SECURITY QUESTIONS AND ANSWERS

PLEASE CREATE YOUR PASSWORD RESET SECURITY QUESTIONS AND ANSWERS.

CREATE

Red App Development

URL

+

http://localhost:8080

-

Apply changes to load module.

Close

Apply

<< Trip Summary

No PNR

+ Add to PNR

Travelers (0)

Air (0)

Hotel (0)

Car (0)

Other (0)

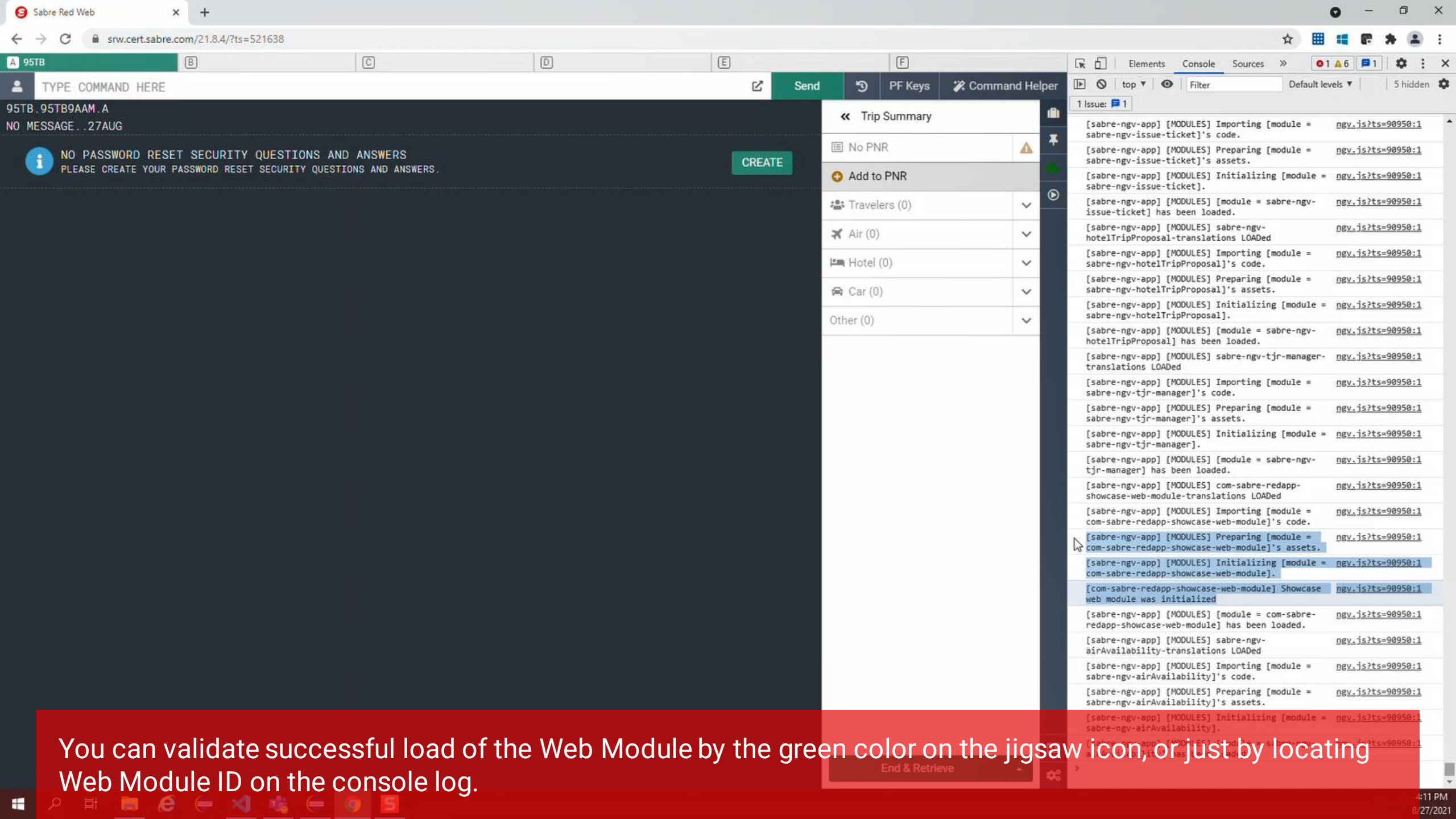
1 Issue: 1

then hit Apply button, which will re-load Sabre Red Web and the Web Modules added through this panel

4:11 PM

8/27/2021





You can validate successful load of the Web Module by the green color on the jigsaw icon, or just by locating Web Module ID on the console log.



# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

Developers Resources & Downloads

Setup Development Environment

Build and Debug Red Apps

Bundle and Publishing procedures



# Getting started with Red App Software Developer Toolkit



Step by step guide about installation procedures and creation of Red App project

## Bundle and Publishing procedures



### Bundle

Red App tools added to Eclipse IDE allows Exporting Red App bundles with Wizard style interface.

Sabre Concierge Tool is used to create the Red App bundle, NGV EXPORT command would do the trick.

Red App bundles needs to be signed with Application Certificate issued to Red App provider (Developer)

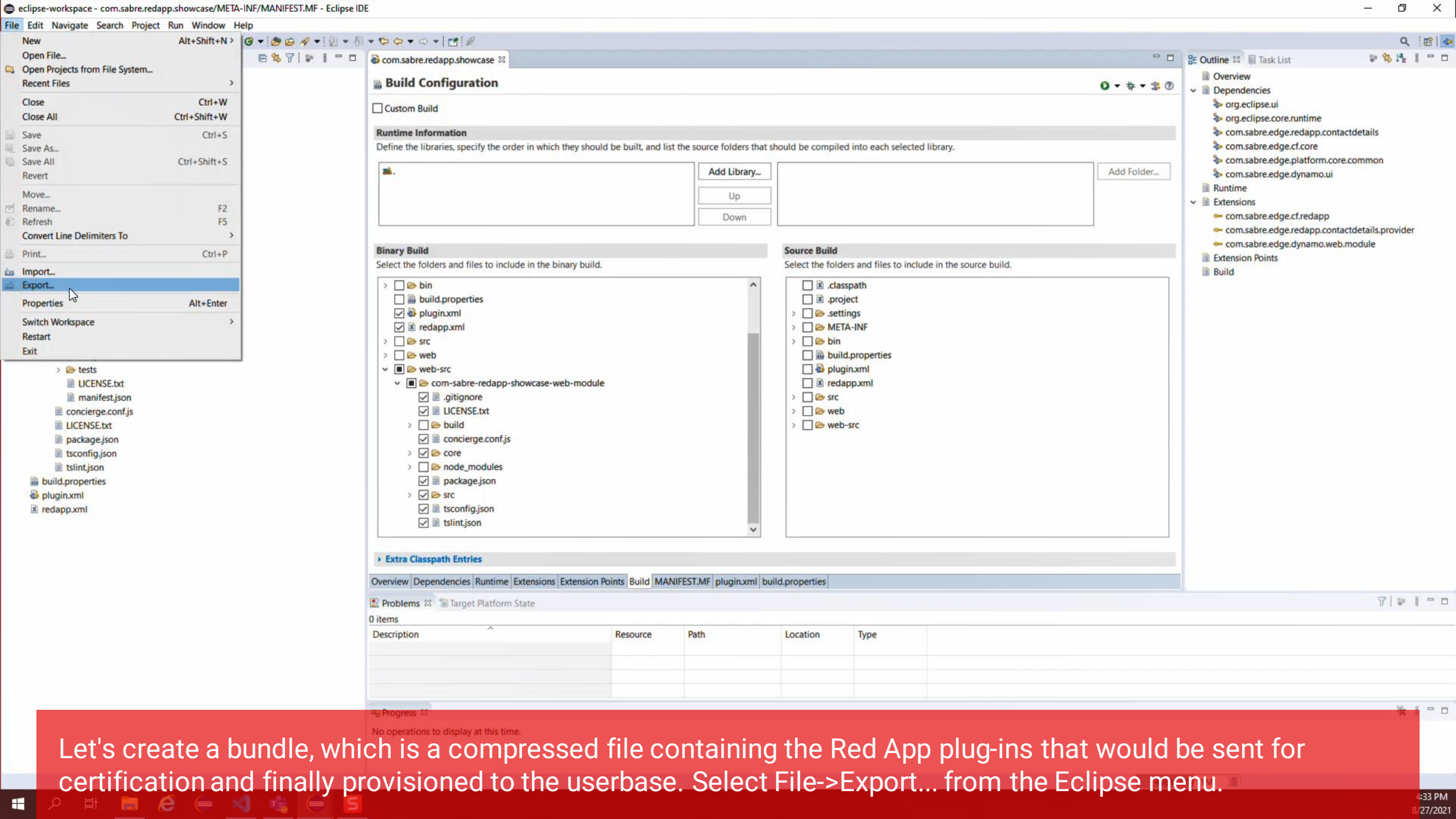


### Publishing

Upload Red App bundle and Documentation to Sabre Red App Centre

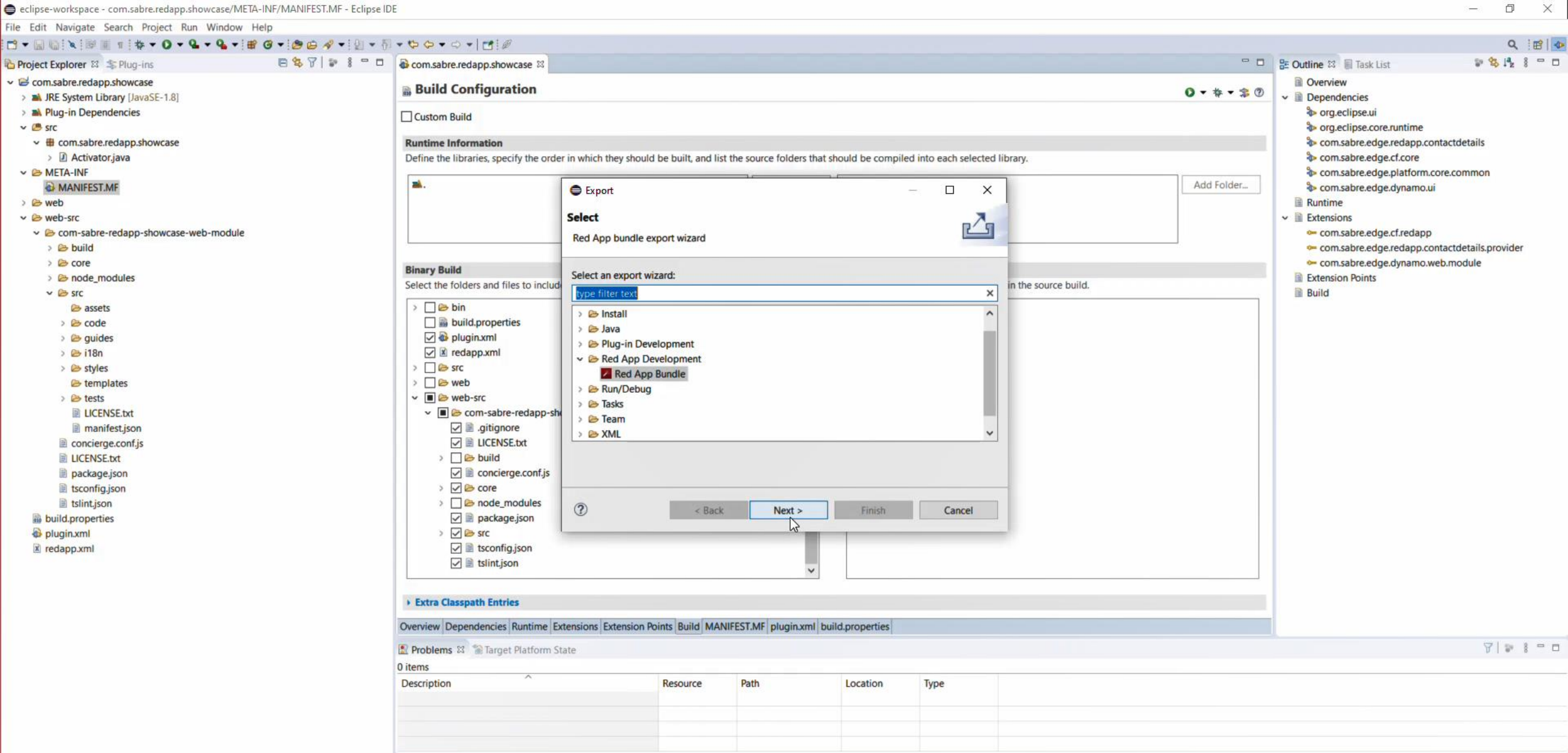
Perform beta test and certification process

Manage Red App Storefront

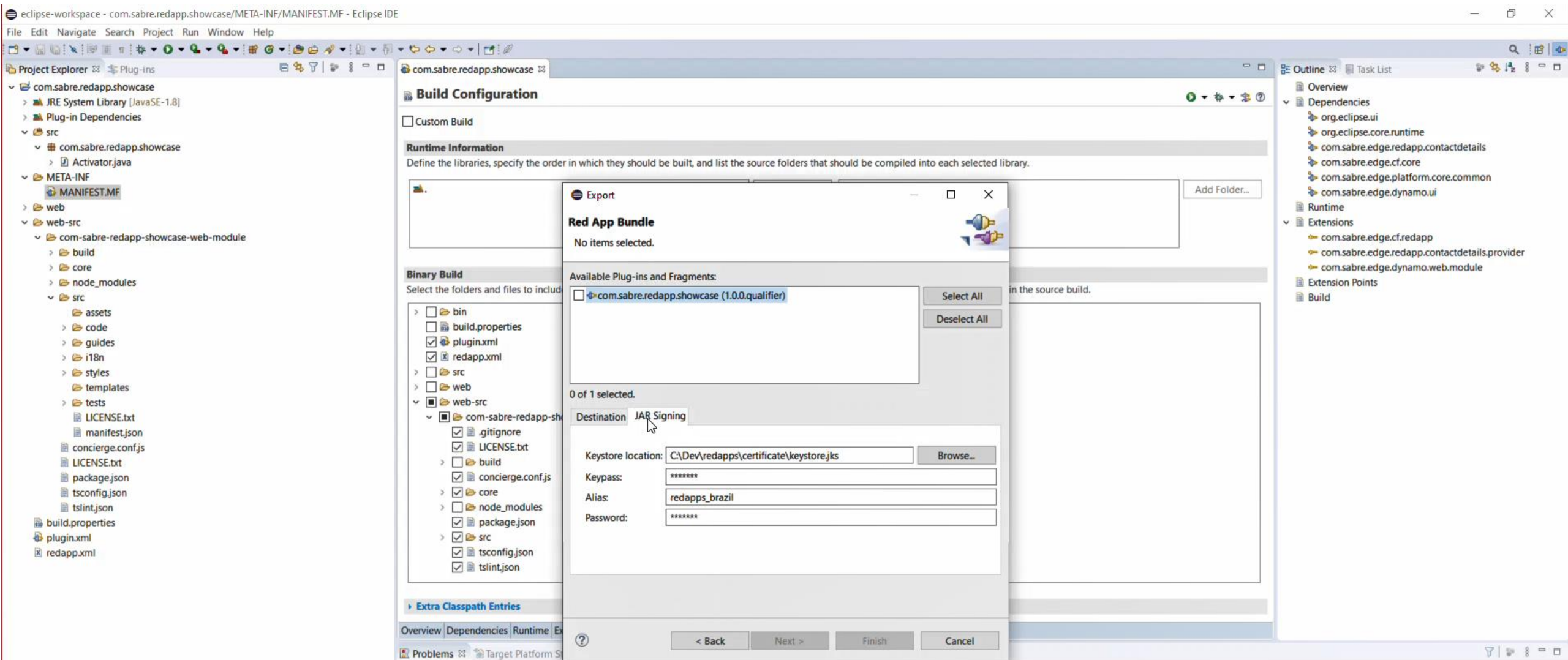


Let's create a bundle, which is a compressed file containing the Red App plug-ins that would be sent for certification and finally provisioned to the userbase. Select File->Export... from the Eclipse menu.

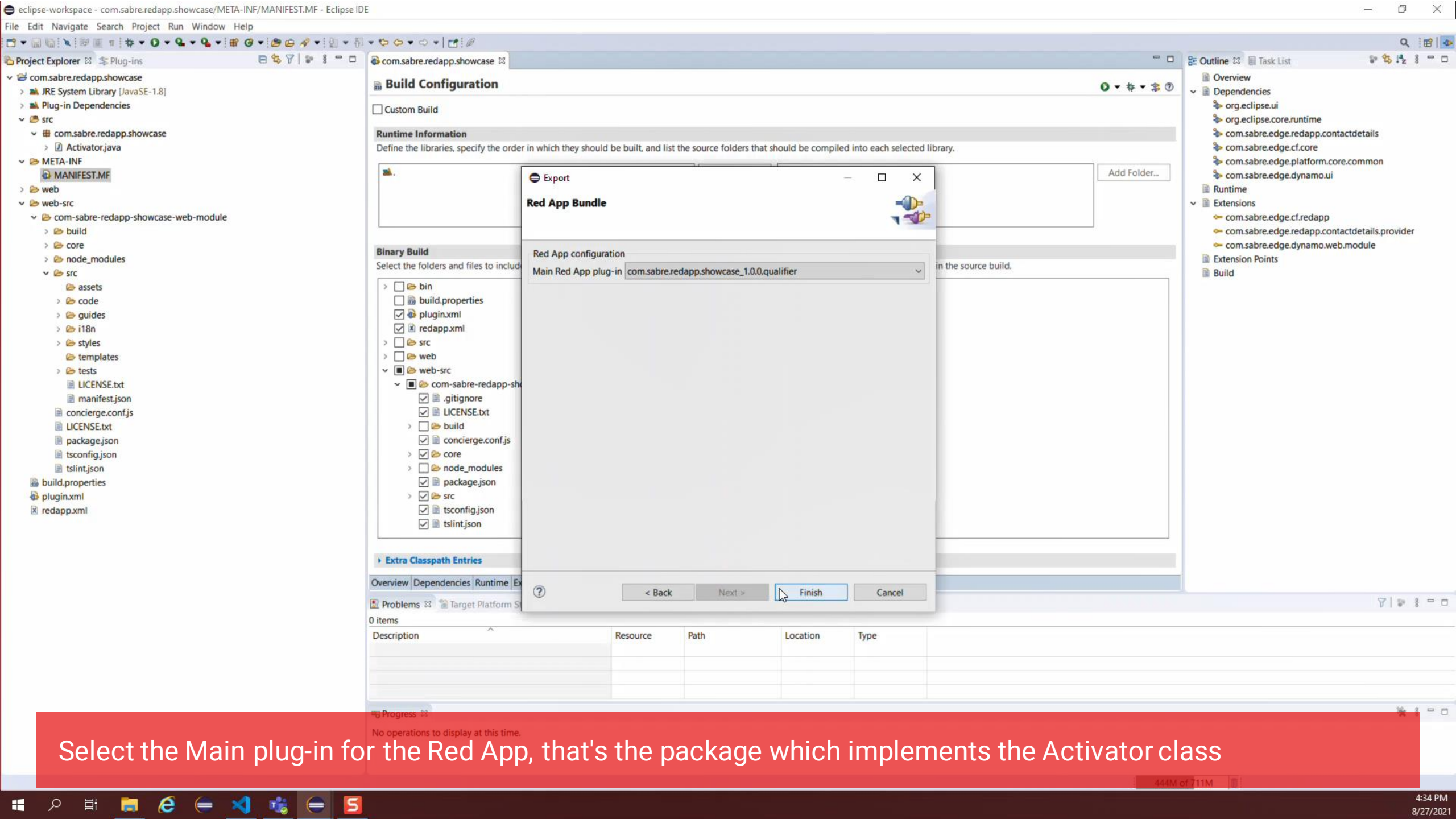




Red App developer tools installed previously offers a Wizard style interface to generate Red App bundles. Select Red App Development -> Red App Bundle from the available export choices, then hit Next button.

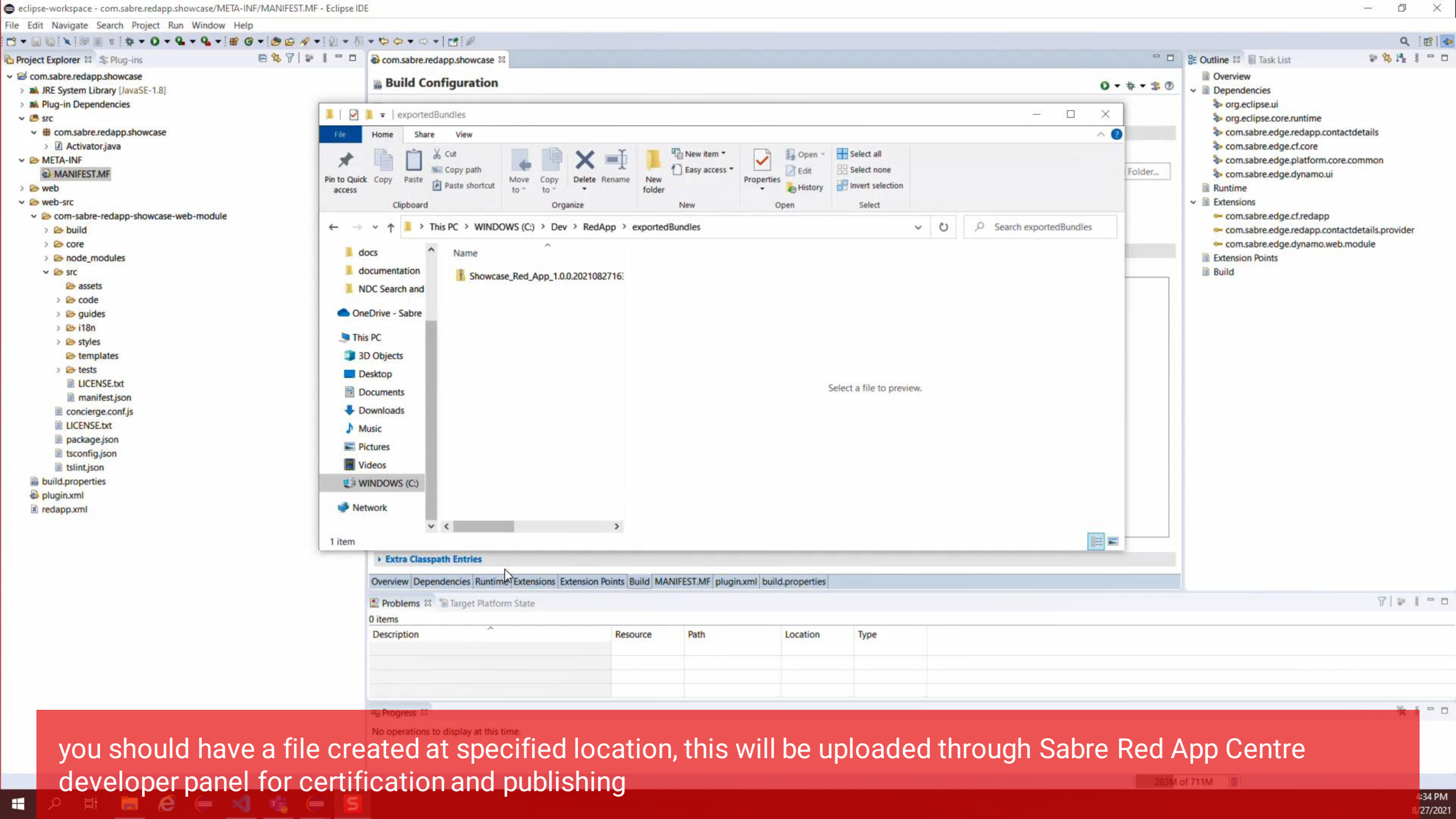


Red App Bundle export pop-up is shown, select the Red App plug-in project to be exported and a directory where the generated file would be saved. Notice that to create a Red App bundle, the file must be digitally signed too proof authenticity of the Red App and Provider, this is done through a Java Application certificate issued by Sabre's approved authorities, please be sure to acknowledge on that requirement with Red App support team or your Account Representative.



Select the Main plug-in for the Red App, that's the package which implements the Activator class





you should have a file created at specified location, this will be uploaded through Sabre Red App Centre developer panel for certification and publishing





# Getting started with Red App Software Developer Toolkit

Step by step guide about installation procedures and creation of Red App project

## Bundle and Publishing procedures



### Bundle

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### Publishing

Upload Red App bundle and Documentation to Sabre Red App Centre

Perform beta test and certification process





Manage Red App Storefront



**WELCOME TO OUR MARKETPLACE**  
Learn how you can customize your Workspace with Red Apps

**COME INNOVATE WITH US**  
Become a Red App Certified Provider

Featured

 <p><b>Low Fare Calendar</b></p> <p>Travel Activities</p> <p>Low Fare Calendar Red App allows users of Sabre Red 360 to quickly view the lowest round-trip fares for the desired length of stay for each departure date during the next six</p> <p>★★★★★ (5)</p> <p>Paid</p>	 <p><b>Quick Look</b></p> <p>Travel Activities</p> <p>Quick Look is a new Sabre Red App that allows Sabre agents to search for commands and error references within their workflow. The application is available for Sabre Red</p> <p>★★★★★ (0)</p> <p>Free</p>	 <p><b>Quick Look</b></p> <p>Travel Activities</p> <p>Quick Look is a new Sabre Red App that allows Sabre agents to search for commands and error references within their workflow. The application is available for Sabre Red</p> <p>★★★★★ (0)</p> <p>Free</p>	 <p><b>Quick Look</b></p> <p>Travel Activities</p> <p>Quick Look is a new Sabre Red App that allows Sabre agents to search for commands and error references within their workflow. The application is available for Sabre Red</p> <p>★★★★★ (0)</p> <p>Free</p>
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Open a Web Browser and navigate to <https://www.sabreredappcentre.sabre.com>



## Enterprise Sign In Sabre Travel Network

**SIGN IN**

[Forgot password?](#)

[Not a Sabre Travel Network user?](#)

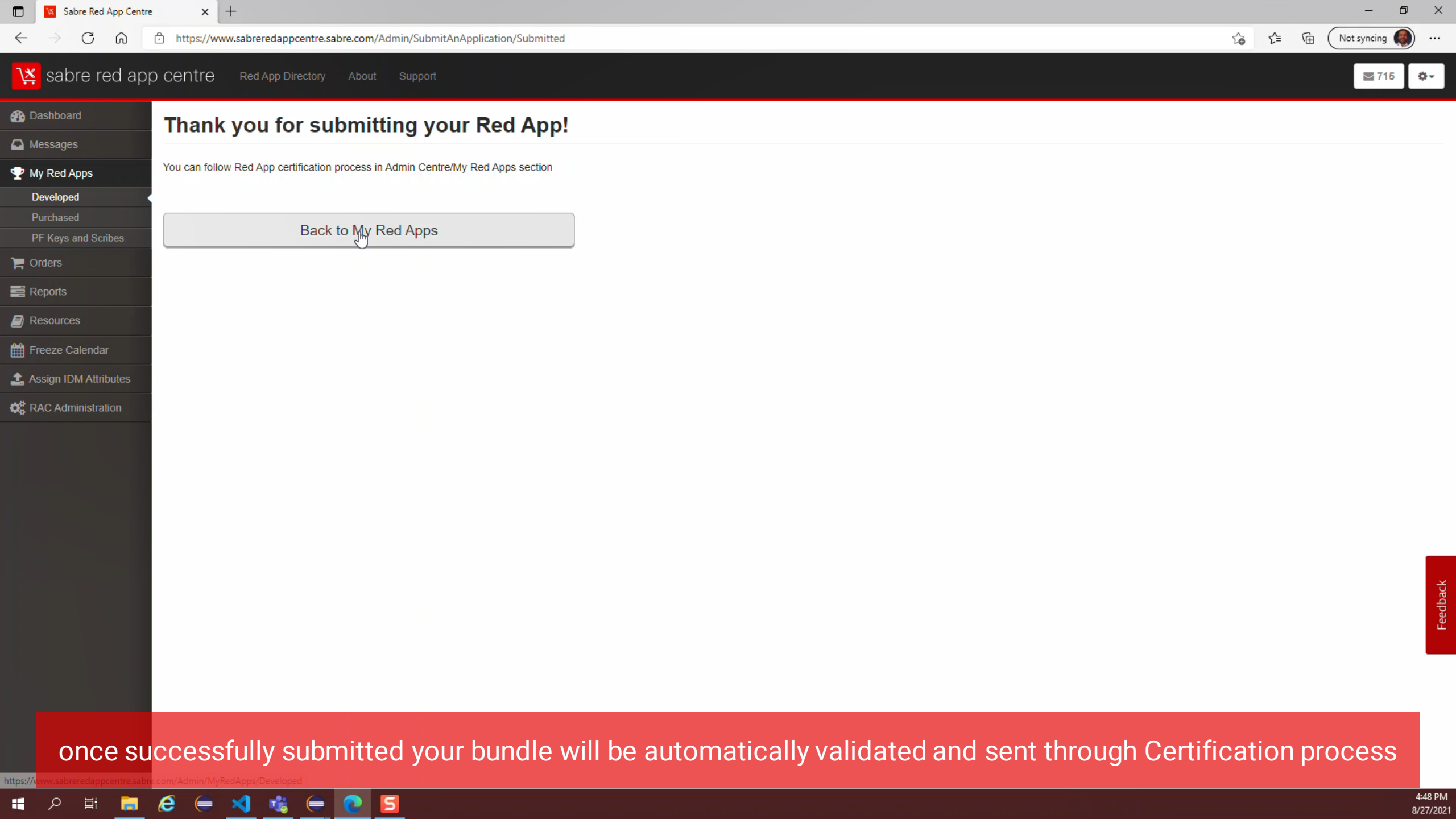
Enter you developer credentials provided upon Developer agreement with Sabre.

<https://www.stopsleepapnea.com/education/ReadArticleDetail/PrevalenceOfSleepDisorderedBreathingInRheumatoidArthritis>



we already have a previous version published. Hit Submit button undr Submit new Bundle section.



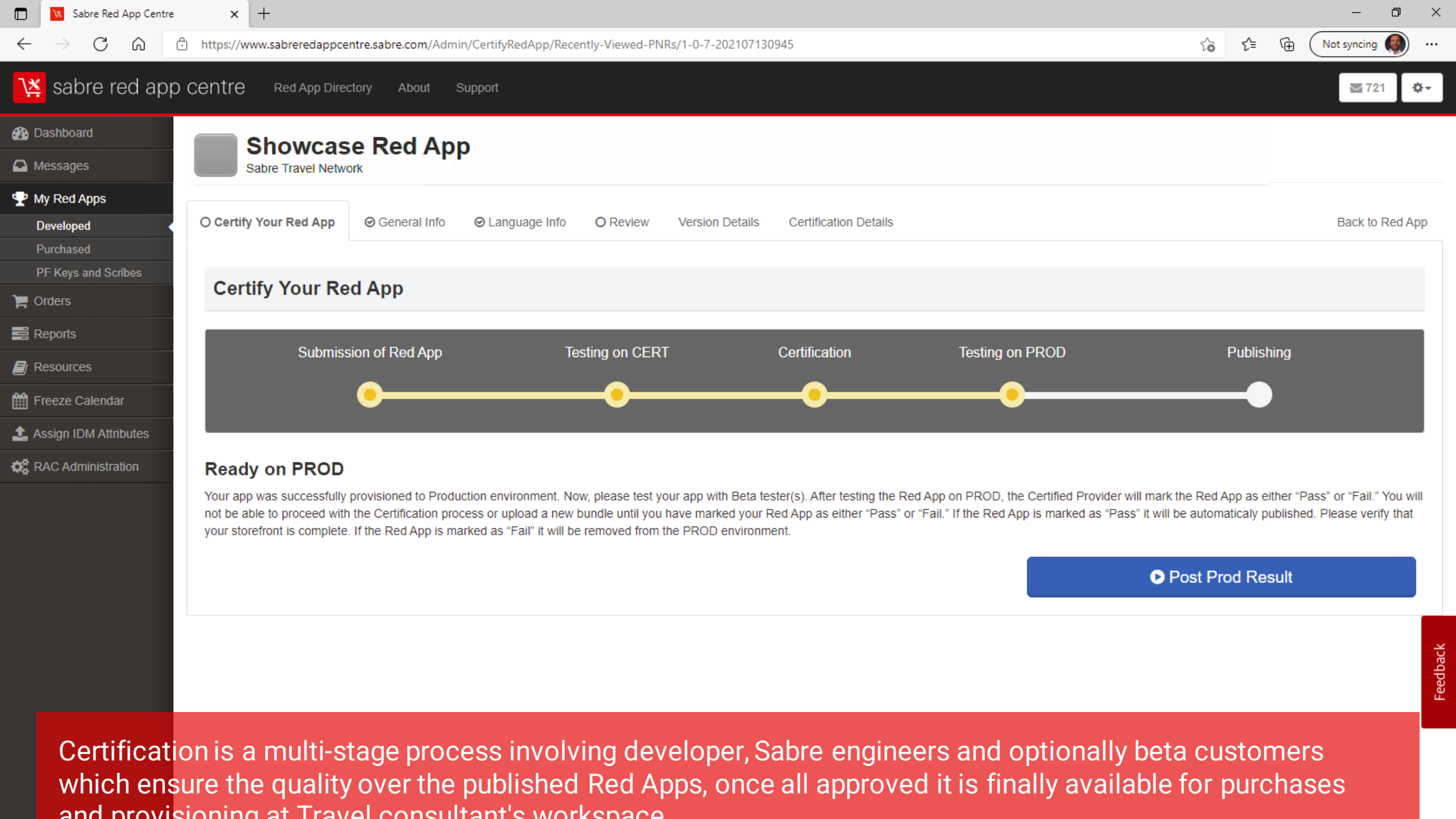


## Thank you for submitting your Red App!

You can follow Red App certification process in Admin Centre/My Red Apps section

[Back to My Red Apps](#)

once successfully submitted your bundle will be automatically validated and sent through Certification process



Certification is a multi-stage process involving developer, Sabre engineers and optionally beta customers which ensure the quality over the published Red Apps, once all approved it is finally available for purchases and provisioning at Travel consultant's workspace



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