The WEPS Bootloader was developed to provide Windows users an alternative installation and execution option for WebStart WEPS following Oracle's removal of the Java WebStart functionality from Java version 11. The WEPS Bootloader provides the required functionality needed to install WebStart WEPS that was provided by Java WebStart in Java 8.

There are some caveats with using the Windows MSI installation of the WEPS Bootloader code, but they probably don't impact most WEPS users. The biggest issue is that the WEPS Bootloader itself must be installed separately on the user's system and normally requires "Administrator" privileges to install it. The Java WebStart method did not require elevated privileges to install WebStart WEPS nor did a user have to install any other program on their system besides Java to run WEPS, since it was a part of the Java package. There is now an open source project called OpenWebStart designed to replace the Java WebStart functionality removed from Java 11 and later versions of Java, but currently it must also be installed as a separate independent package as it is not yet included as a part of any OpenJDK Java packages at this time.

Installation

The WEPS Bootloader is an MSI file that installs the bootloader code onto a Windows computer. One must run the installation command with elevated "Administrator" privileges. The command to install the WEPS Bootloader from a Windows Command Prompt is:

```
>misexec /i WEPS_Bootloader.msi /l* WEPS_Bootloader.log
```

The user should see the following popup message during the installation process:



In addition, the user will normally be requested to answer yes to the "User Account Control" popup window to complete the installation process:

User Account Control	×
Do you want to allow this app from an unknown publisher to make changes to your device?	
H:\NetBeans_Projects\Wagner \weps.bootstrap-noWebstart-v2\WIX WEPS Bootloader\WEPS_Bootloader.msi	
Publisher: Unknown File origin: Network drive	
Show more details	
	_
Yes No	



Once the installation is complete, it will have added an entry into the Control Panel's "Programs and Features" listing:

Control Panel\Programs\Progra	ams and Features					- 0	×
\leftarrow \rightarrow \checkmark \uparrow \square \land \Box	ontrol Panel > Programs > Programs and Features			~	C Search Program	ns and Featu	Q
Control Panel Home View installed updates	Uninstall or change a program To uninstall a program, select it from the list and the	en click Uninstall, Change, or Repair.					
off	Organize 🔻 Uninstall Change Repair					≣ ▪	•
	Name	Publisher	Installed On	Size	Version		
	💮 WEPS WebStart Bootloader 2.0	USDA-ARS	11/20/2024	13.8 MB	2.0.0]	1
	WiX Toolset v3.14.1.8722	.NET Foundation	11/20/2024	275 MB	3.14.1.8722		

In addition, a desktop icon will be installed:



As well as a menu entry under "USDA Applications" for the WEPS Bootloader and a PDF version of this User's Manual:



Executing the WEPS Bootloader

There are two modes of operating the WEPS Bootloader, one intended for normal WEPS users in the U.S. and a second option for advanced users such as WEPS developers/testers, scientists, foreign researchers, etc. needing access to the latest and/or alternative WEPS builds.

The first mode only provides access to the approved NRCS Release build of WebStart WEPS. The user can simply click on the installed icon or Windows menu entry "WEPS Bootloader 2.0" from within the "USDA Applications" folder. It will install WebStart WEPS upon the first invocation of the WEPS Bootloader code and then bring up an instance of the WEPS NRCS Release build. Subsequent invocations of the WEPS Bootloader will first check to see if updates are available and if they are, install those updates prior to bringing up an instance of the WEPS NRCS Release build.

A popup window will always appear displaying text about the progress of the installing/updating and launching processes. Here is an example of that popup window:



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WEPS Software Update Version: NRCS_release version 2.0.6	File downloading DataBases zip	7 Mb	verall MB/sec
New WebStart WEPS build version to be installed: 1.8.38 Software file download failed: launch-local-weps-NRCS_re Doing data install. Downloading package: DataBases.zip	ease.jnlp retrying		
			Cancel Install

If internet connectivity to the WEPS server is unavailable, it cannot check and install any WEPS updates. So, the Bootloader will ask the user if they want to execute the current local copy of WEPS. If the CSIP services are still accessible, the user can run WebStart WEPS just fine. If internet connectivity is unavailable, the user can temporarily configure WEPS to execute all functions locally, rather than remotely in the cloud via CSIP services, etc. A popup message will appear that describes the options available to the user and how to re-configure WEPS to run locally, etc. Here is an example of that popup window:



lnternet Connectivity with Server Notice	_	
WebStart WEPS failed to communicate with the ARS There are several possibilities as to what the issue of	"infosys.ars.usda.gov" WebStart server. nay be:	
 Internet connectivity is available, but WebStart WEP In this situation, a WEPS user may be able to run W a. If all the CSIP remote services specified in the co WebStart WEPS should operate normally and als b. If one or more CSIP remote services are being pr the user should be able to interact with the WebS A WEPS Run can only be made if the "infosys.ars are substituted with another server that provides to Instructions are provided below on how to make services. 	S for some reason cannot communicate with the server. ebStart WEPS normally. It just couldn't complete the WEPS update check prior to initiating WebStart WEPS on the user's con nfiguration file(s) are NOT being provided by the "infosys.ars.usda.gov" server, o be able to remotely execute WEPS Runs. ovided by the "infosys.ars.usda.gov" server (like the first three services shown in the screenshot below), tart WEPS interface normally, but they will not be able to execute a remote WEPS simulation Run. usda.gov" CSIP services specified in the Config Panel hose CSIP services. such changes.	nputer.
 Internet connectivity is unavailable. In this situation If a user has WebStart WEPS configured to execute unless they reconfigure WEPS to not use the CSIP Likewise, one cannot select soils using the provide All other local soil files should still be accessible. 	WebStart WEPS cannot access any remote services for executing a WEPS Run. WEPS Runs remotely via CSIP services, they will not be able to make WEPS Runs, services and to make WEPS Runs locally on their computer. d remote access methods, e.g. the "NRCS Soil Data Mart db" or the "CSIP Soil Service" connections.	
The steps to re-configure WebStart WEPS to make loc a. Open the Configuration Panel via the "Tools/Edit b. The following screenshot shows the five CSIP se c. To make a fully local WebStart WEPS simulation d. Then click on the "OK" button in the bottom right c The user will then be able to make local WebStart WE Note: The user will need to manually re-inserting the to revert back to making fully remote WEPS simula	al WEPS simulation Runs are outlined here: Configuration" menu option. Select the "Server" tab on the Config Panel. rvices checkmarked to make a fully remote WEPS Run simulation. Run, uncheck all the checkboxes. orner of the screen. PS simulation runs without an internet connection. theckmarks and saving the Config Panel settings, tion runs. once internet connectivity is again restored.	
	uni funo, once interne connecting la again restored.	
) ×
Model executables Model options Remo Execution locations - model executables	te data services	
✓ Run interpolate on server	https://infosys.ars.usda.gov/csip-climate/m/interpolate/1.0	
✓ Run interpolate gen data on server	https://infosys.ars.usda.gov/csip-climate/m/interp_vvdb/1.1	5
Run windgen on server	https://infoeys.ars.usda.gov/csip-climate/m/windgen/1.0	3
✓ Run cligen on server	https://csip.engr.colostate.edu:9083/csip-climate/m/cligen_prism/weps/1.0	2
Run weps on server	https://csip.engr.colostate.edu:9083/csip-weps/m/weps/1.0	-
OK (Launch WEPS) Cancel (Exit Bootloader)	

The second mode provides options to install various WebStart WEPS builds configured for specific users, WEPS developers/testers, etc. This Bootloader mode is enabled by simply copying a "WEPS_Bootloader_choices.cfg" named file into the user's "WEPS_Bootloader" folder. This folder's location is created during installation here (where "user_name" is the user's Windows user account name):

C:\Users\user_name\AppData\Roaming\.weps\WEPS_Bootloader

The user can execute the WEPS Bootloader from either the desktop shortcut or the menu entry. With the "WEPS_Bootloader_choices.cfg" file installed, the Bootloader program will bring up the initial popup window:



	×
	WEPS Version Selector version 2.0.5
9	WEPS Version to Load
	NRCS Release
	Install/Update Run Uninstall
	Cancel

The choice list and button options are:

• Choice list field

Allows user to select the specific WEPS build they want to install, run or uninstall

- o Description of selectable options provided later in this document
- o Screenshot of dropdown choice list displayed



- Install/Update
 - Will install or update, then launch the selected WebStart WEPS. A popup window will appear displaying text and vertical progress and download speed bars during the install/updating process.



WEPS Software Update Version: NRCS_release version 2.0.6	File downloading	step overall	Speed 0.859 MB/sec
New WebStart WEPS build version to be installed: 1.6.36 Software file download failed: launch-local-weps-NRCS_re Doing data install. Downloading package: DataBases.zip Unpacking zipped package: DataBases.zip Downloading package: Data.zip	lease.jnlp retrying		

- Run
 - Will launch the currently installed selected version of WebStart WEPS without checking for possible updates. A popup window will appear during the WEPS launching process and disappear when the WebStart WEPS GUI displays.

🕌 Weps Boot	🛃 Weps Boot message		
	unching Weps		

- Uninstall
 - o Will uninstall the selected WebStart WEPS build
 - Here are the series of popup windows and dialog boxes a user will see when hey select this option:



				×
Deleting build dir Deleting C:\Users\wa Deleting WEPS app Weps uninstall com	S Software Update Illing: NRCS_release 2.0.5 Igner/AppData\Roaming\.weps\NRCS_ lication files: C:\Users\wagner/AppDat plete.	release a\Roaming\.weps\\NRCS_release	Progress step or	verall
Weps Bo	oot message WEPS will now uninst Please confirm. Yes	all itself and all of its loc	× cal data files.	Cancel Install
🛃 Weps Boot m	lessage your sure you want to delete	the C:\Users\wagner/AppData/F	Roaming/.weps/NRCS_release/	folder and all of its contents
Note e.g.	e that multiple installation inst "ARS Daily" and "ARS Interna	ances may use the same "buil tional Daily" both use the "ARS Yes No	d" folder, 5_Daily" build folder name.	
🍰 Weps Bo	oot message	×		
C)	WEPS uninstall proce	ss complete.		

- Cancel
 - Exits the WEPS Bootloader.



The choice list options are described here:

- NRCS Release
 - Default selection. It is the most stable NRCS build. This build is configured per NRCS needs/requirements and recommended for most WEPS users.
- NRCS Pre-Release
 - A test release consisting of new features, bug fixes, etc. This pre-release build will eventually get promoted to the "NRCS Release" build after successful testing.
- NRCS Daily
 - The NRCS daily build. It contains new features and bug fixes being developed for eventual testing as new pre-release builds. This build is updated frequently with little testing conducted, so it is not a selection normal users should select.
- NRCS Release Development
 - The NRCS development release build enables additional features/functionality normally withheld from the normal NRCS configured builds. Used for evaluating advanced features in the NRCS release build.
- NRCS Pre-Release Development
 - The NRCS development pre-release build enables additional features/functionality normally withheld from the normal NRCS configured builds. Used for testing/evaluating new features and bug fixes for upcoming NRCS release builds.
- NRCS Daily Development
 - The NRCS development daily build enables additional features/functionality normally withheld from the normal NRCS configured builds. Used for testing new features under development and bug fixes for future NRCS pre-release and release builds.
- ARS Release
 - Public build with all WEPS features enabled. It is the most stable of the public ARS builds. It is recommended for users needing access to additional features not provided/allowed in the NRCS builds.
- ARS Pre-Release
 - A public ARS build test release consisting of new features, bug fixes, etc. This pre-release build will eventually get promoted to the "ARS Release" build following successful testing.
- ARS Daily
 - The public ARS daily build contains new features and bug fixes being developed for eventual testing in new pre-release builds. This build is updated frequently with little testing conducted so it is not a selection normal users should select.
- ARS International Release
 - Public international build with all WEPS features enabled, but defaulting to SI (metric) units for model inputs/outputs. It is the most stable of the public ARS international builds. It is recommended for users needing access to additional features not provided/allowed in the NRCS builds and desiring the model inputs/outputs be in SI units.
- ARS International Pre-Release
 - A public ARS international build test release consisting of new features, bug fixes, etc. It defaults to SI units for user inputs/outputs. This pre-release build will eventually get promoted to the "ARS International Release" build following successful testing.
- ARS International Daily



 The public ARS international daily build – contains new features and bug fixes being developed for eventual testing in new pre-release builds. It defaults to SI units for user inputs/outputs. This build is updated frequently with little testing conducted so it is not a selection normal users should select.



Here are the contents of a "WEPS_Bootloader_choices.cfg" file containing all possible choices. It is simply an ASCII text file consisting of one WEPS build name per line. The file can contain a subset of the following entries:

NRCS Release NRCS Pre-Release NRCS Daily NRCS Release Development NRCS Pre-Release Development ARS Release ARS Pre-Release ARS Daily ARS International Release ARS International Pre-Release ARS International Daily

Uninstalling the WEPS Bootloader

To uninstall the WEPS Bootloader, go to the Control Panel's "Programs and Features" listing and double click the mouse button on the WEPS Bootloader entry (note that the user will require "Admin" privileges to perform a successful uninstall of the WEPS Bootloader program):

Control Panel\Programs\Progra	ams and Features					- 0	×
← → ✓ ↑ 🗷 > Control Panel > Programs > Programs and Features ∨ C Search Programs and Features				Q			
Control Panel Home View installed updates Turn Windows features on or	Uninstall or change a program To uninstall a program, select it from the list and then	click Uninstall, Change, or Repair.					
off	Organize 🔻 Uninstall Change Repair					≣ .	?
	Name	Publisher	Installed On	Size	Version		
	💮 WEPS WebStart Bootloader 2.0	USDA-ARS	11/20/2024	13.8 MB	2.0.0		1
	💀 WiX Toolset v3.14.1.8722	.NET Foundation	11/20/2024	275 MB	3.14.1.8722		

That will bring up the following popup message:

Programs and Features	
Are you sure you want to uninstall WEPS Web	Start Bootloader 2.0?
In the future, do not show me this dialog box	Yes No



Answering yes will bring up another popup window showing the progress of the uninstallation process:



In addition, the user will normally be requested to answer yes to the "User Account Control" popup window to complete the uninstall process:

User Account Control	×
Do you want to allow this app from an unknown publisher to make changes to your device?	
C:\Windows\Installer\5cbce4c.msi	
Publisher: Unknown File origin: Hard drive on this computer	
Show more details	
Yes No	J

