

# EDEN Depth&DaysSinceDry Tool (v. 2.0)

## User's Guide

07/10/2012

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## What is the EDEN Depth&DaysSinceDry Tool?

EDEN Depth&DaysSinceDry is a program for creating daily surfaces (in NetCDF file format, .nc) of water depth (in centimeters) and days since dry from EDEN daily water level surfaces and ground elevation model.

The daily surface of water depth is created by subtracting the ground elevation for the EDEN grid cell (400 meter by 400 meter cells) from the water level surface. The days since last dry indicate the number of consecutive days that an EDEN grid cell surface has had a depth value greater than zero. The count of "0" indicates that the cell is dry (water depth is equal or less than zero) for that day. When the cell becomes wet (water depth is greater than zero), the count begins, and increases each wet day until a dry day is encountered. When the cell dries, the count returns to zero and remains at zero until the cell is wet again (see example below).

### **For your information:**

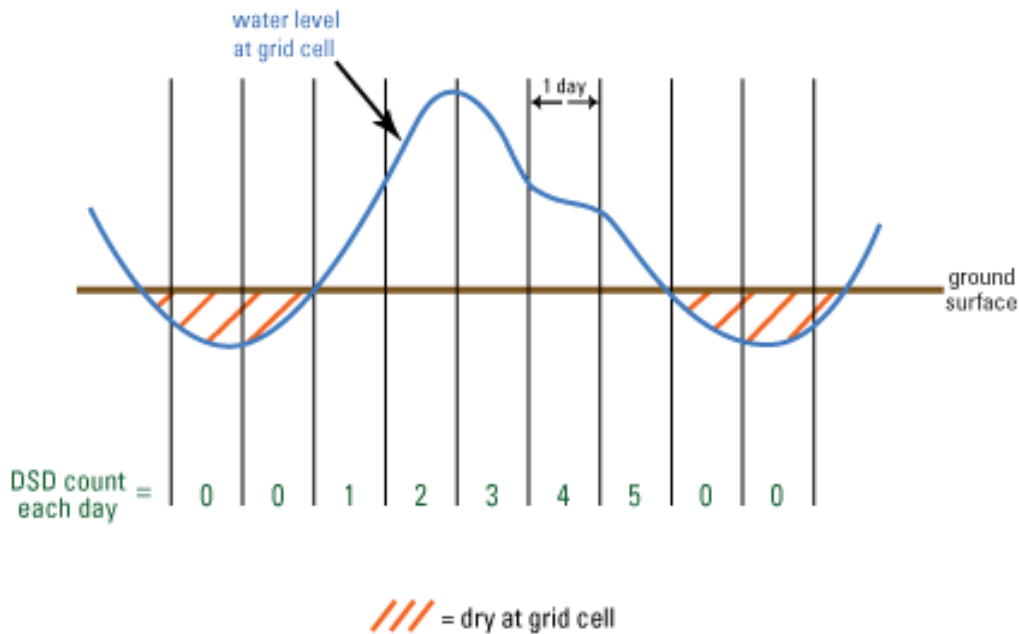
At the beginning of the user-specified time period, the value of the days since last dry at all grid cells is set to null or 'no data'. Once the grid cell becomes dry for the first time, the computation of days since last dry starts, therefore it is feasible that some grid cells may never become dry during the period and have no value for the days since last dry computation.

All water depth data are output in centimeters, to North American Vertical Datum of 1988 (NAVD88).

## Depth and Days Since Last Dry Calculations

The daily surface of water depth is created by subtracting the ground elevation for the EDEN grid cell (400 meter by 400 meter cells) from the water level surface. Please note, the ground elevation for an EDEN grid cell may not accurately represent the grid elevations at a specific sample location.

The days since last dry indicate the number of consecutive days that an EDEN grid cell surface has had a depth value greater than zero. The count of "0" indicates that the cell is dry (water depth is equal or less than zero) for that day. When the cell becomes wet (water depth is greater than zero), the count begins and increases each wet day until a dry day is encountered. When the cell dries, the count returns to zero and remains at zero until the cell is wet again.



For example, a count of 3 means that the cell has been wet for the last 3 consecutive days or, said another way, the cell was dry 3 days ago.

## Installation Instructions

Prior versions of the Depth&DaysSinceDry required the user to download NetCDF .dll files and the .NET Framework. This is no longer required, as the latest version of the Depth&DaysSinceDry is Java-based. All necessary files are included in the zip file (see below), except for the Java installation. **Users will need to have 32-bit Java installed on their system before they can run the Depth&DaysSinceDry. This is true for both 32- and 64-bit machines.**

1. **EDEN Depth&DaysSinceDry.exe** (currently at v. 2.0)  
 Available for download at <http://sofia.usgs.gov/eden/edenapps/depth-dayssincdry.php>.  
 Executable file can be copied to any location on your computer.
2. **JavaSE-1.6**  
 Download from <http://www.java.com>

Users will need to have 32-bit Java Virtual Machine (JVM) installed on their system before they can run the Depth&DaysSinceDry. The 64-bit JVM causes issues with the Depth&DaysSinceDry, so if you are running a

64-bit system, please ensure you have the 32-bit JVM installed, not the 64-bit one.

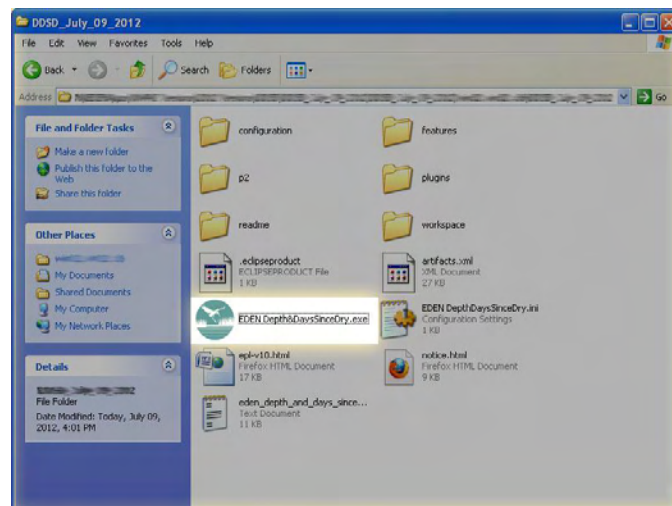
## User Input

### Required files:

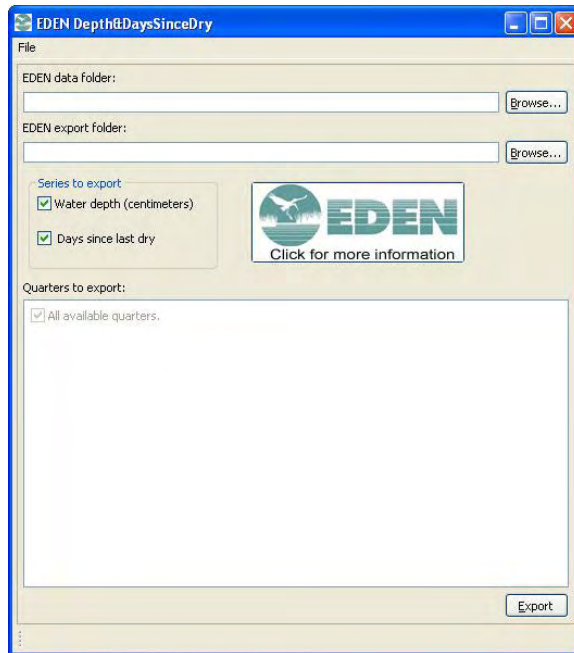
1. EDEN DEM file for ground elevation
  - a. NetCDF file format (.nc)
  - b. Units of centimeters
  - c. Available for download at  
<http://sofia.usgs.gov/eden/models/groundelevmod.php>
  
2. EDEN daily water-level surfaces
  - a. NetCDF format file(s) (.nc) containing daily water level surfaces
  - b. Multiple one-quarter-year files can be used for requested time series (be sure that continuous data files are present for accurate time series calculations)
  - c. Available for download at  
<http://sofia.usgs.gov/eden/models/watersurfacemod.php>

## User Instructions

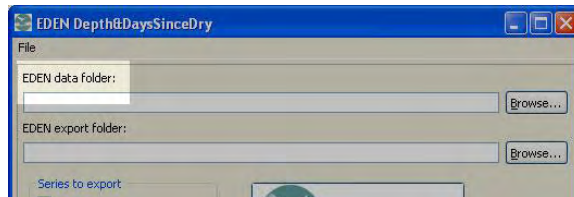
1. Open the application. To do this, navigate to the application and double-click on the icon.



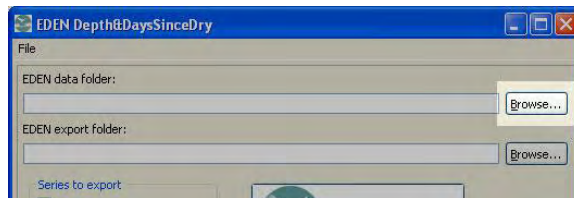
The application will open to the following window.



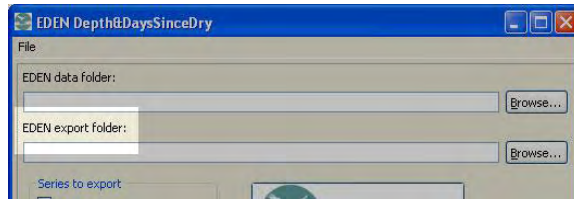
2. Type the folder path to the EDEN data files stored on your hard drive. This folder must contain one or more EDEN daily water level surface files (netCDF, .nc) and the EDEN DEM file for ground elevation (netCDF, .nc).



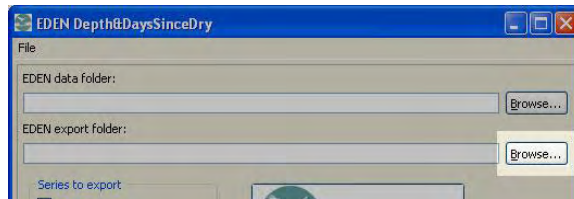
Alternatively, you may click the browse button and browse to the appropriate folder.



Next, type the folder output path where you want the files to be saved.



Alternatively, you may click the browse button and browse to the appropriate folder.



3. Select the data you want to export.
  - **Water depth** extracts a time series of water depth in centimeters for each cell for the user specified one-quarter-year periods.
  - **Days since last dry** indicates the number of consecutive days that an EDEN grid cell surface has had a water depth value greater than zero. The count of “0” indicates that the cell is dry (water depth is equal or less than zero) for that day. When the cell becomes wet (water depth is greater than zero), the count begins and increases each wet day until a dry day is encountered. When the cell dries, the count returns to zero and remains at zero until the cell is wet again

You may select either or both series for export.

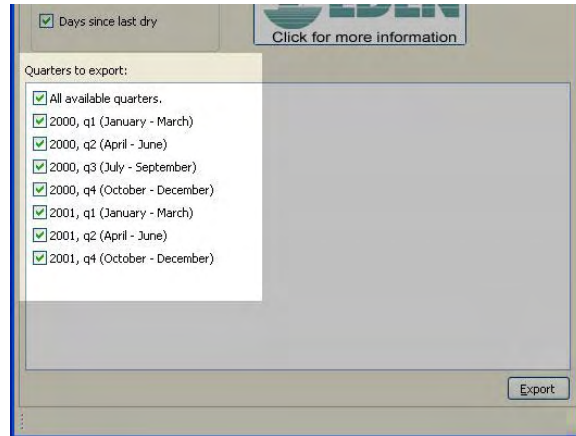


4. Select the one-quarter-year periods for export. The available **quarters to export** will auto-populate from the dates contained in the water-level files inside the EDEN data folder. If there are multiple water surface files, then the dates will extend from the earliest date to the latest date.

If no quarters are listed in the box, ensure that the correct folder has been selected in step 2.

You may select any quarters or **all available quarters** for export. You can click/uncheck the **all available quarters** check box to toggle between:

- selection of **all** quarters (box checked) or
- selection of **no** quarters (box unchecked). This allows the user to individually select specific quarters from the list.



5. Click the export button.



If any information on the form is incomplete, a box will notify you to make the necessary correction.



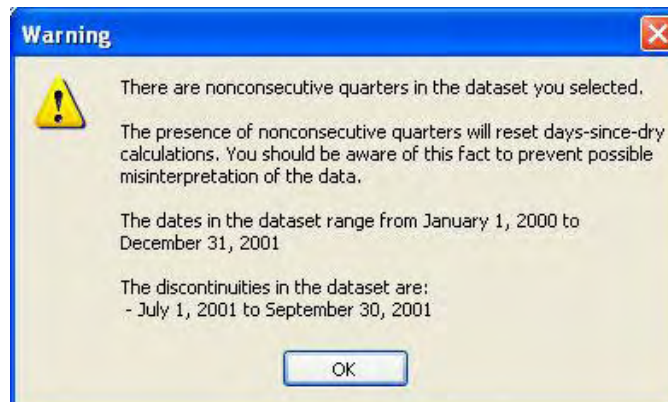
The folder/directory input folder is missing water-level .nc files.



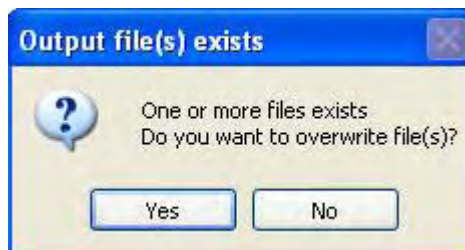
The folder/directory containing the water-level .nc files must also contain the ground elevation (DEM) .nc file. Otherwise, depth and/or days since last dry cannot be calculated.



No output folder was selected.



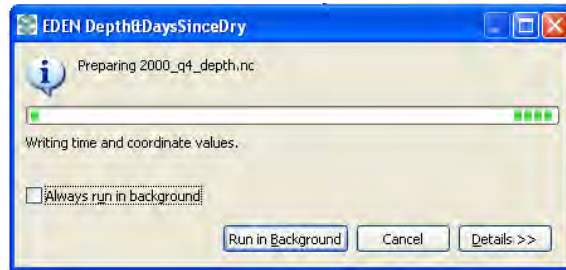
In order for the program to correctly calculate days since last dry, the .nc files must be consecutive. If the files are non-consecutive, the days since last dry calculation will reset and may not accurately represent the data.



The output folder already contains depth and/or days since last dry .nc files. By clicking “Yes” you will overwrite the existing files.



A window will keep you apprised of the program's progress.



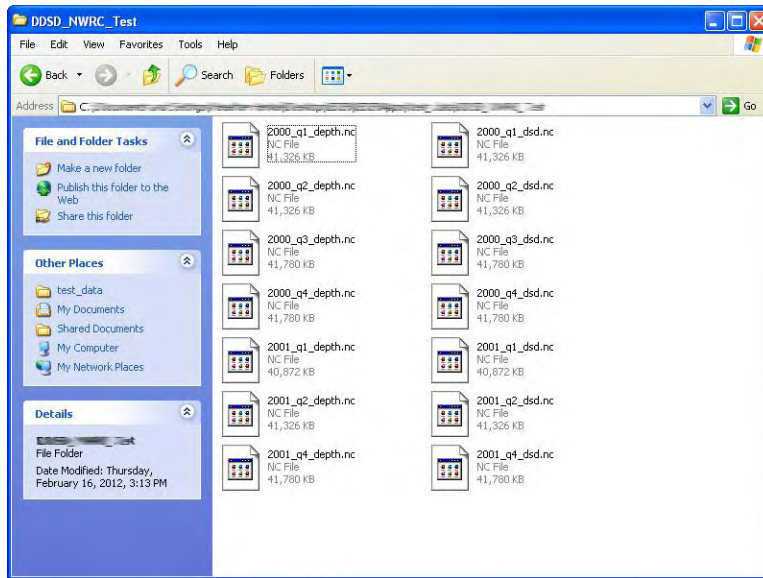
6. A message box will let you know when the program has successfully completed the export process.



7. To close the application, either click on "File" (in the upper-left corner of the application) or click on the "Close" button in the upper-right corner of the window.



8. The output files are saved to the EDEN output folder selected in step 2. The name of each output file is the name of the one-quarter-year water surface file it was created from followed by "\_depth" for depth files or "\_dsd" for days since dry files. (Output file format is netCDF (.nc) file.)



The .nc files can then be viewed in ArcGIS 9.2 or later (or any program that can view NetCDF files). In addition, you can use another EDEN tool, NetCDFtoGrid, to convert the .nc files into ESRI grid files and view them in other applications.

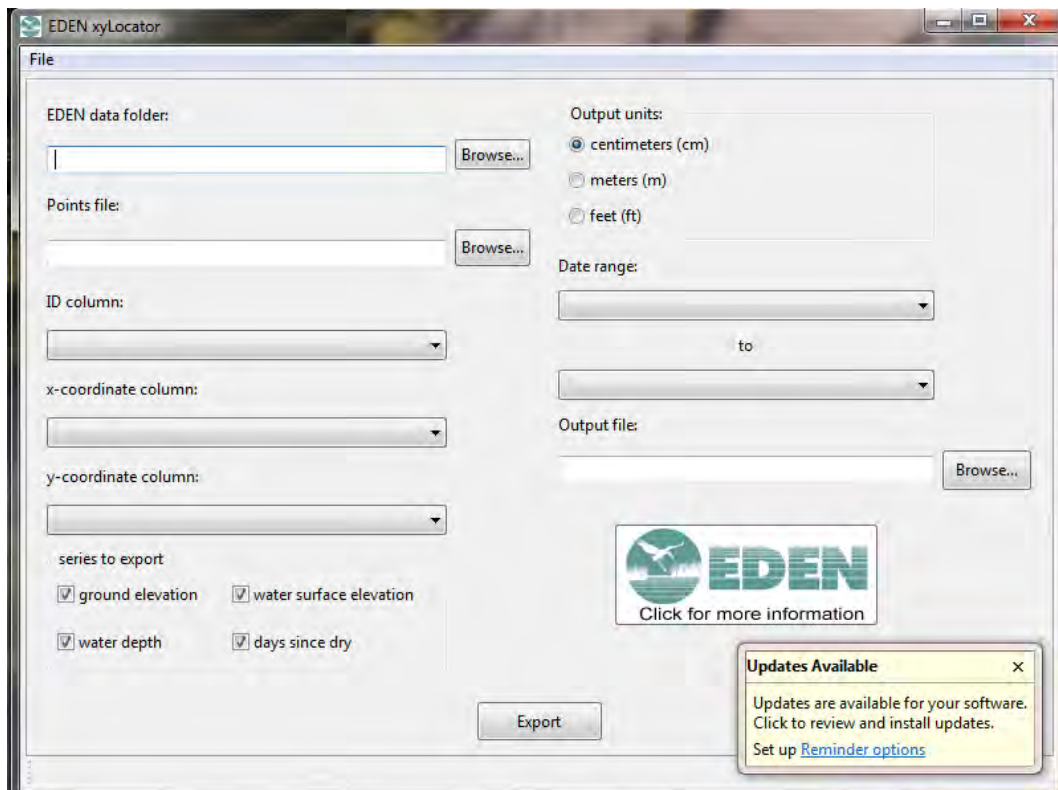
## Additional Information (Updates and Log Files)

**Updates:** Upon opening the application, the program will check to see if there are any updates available. If there are, the program will notify the user so they can download the update(s) if they wish. Please see the next section, “Software Updates”, for additional information.

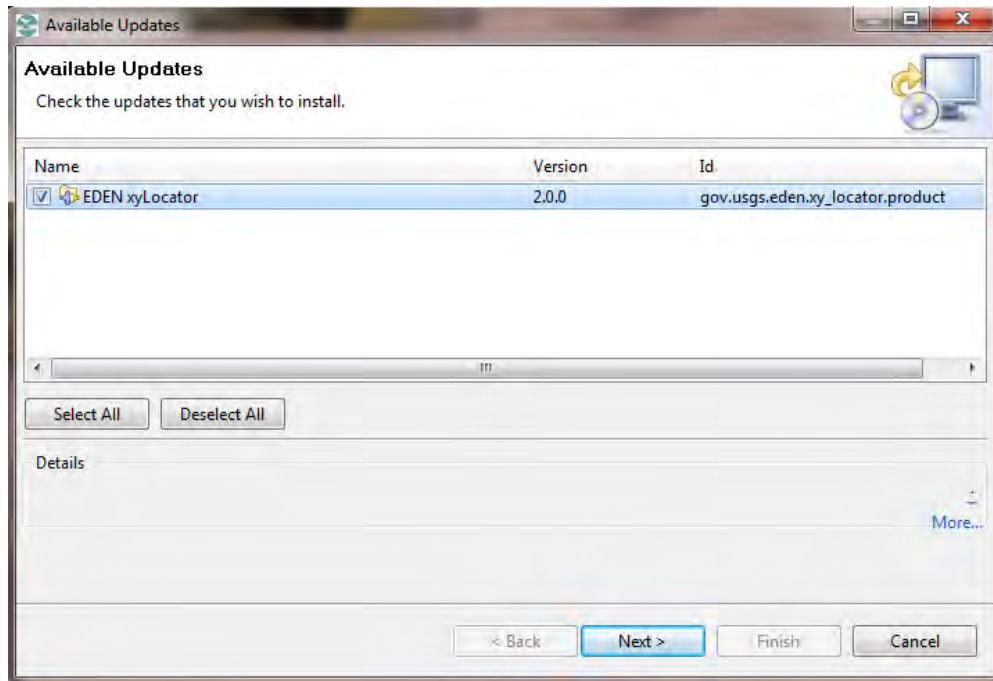
**Log File:** The Depth&DaysSinceDry tool automatically creates a log file containing program information and any error messages. The log file, named “eden\_depth\_and\_days\_since\_dry.log”, is located in the same folder as the Depth&DaysSinceDry application (.exe) file.

## Software Updates for EDEN Depth&DaysSinceDry Tool

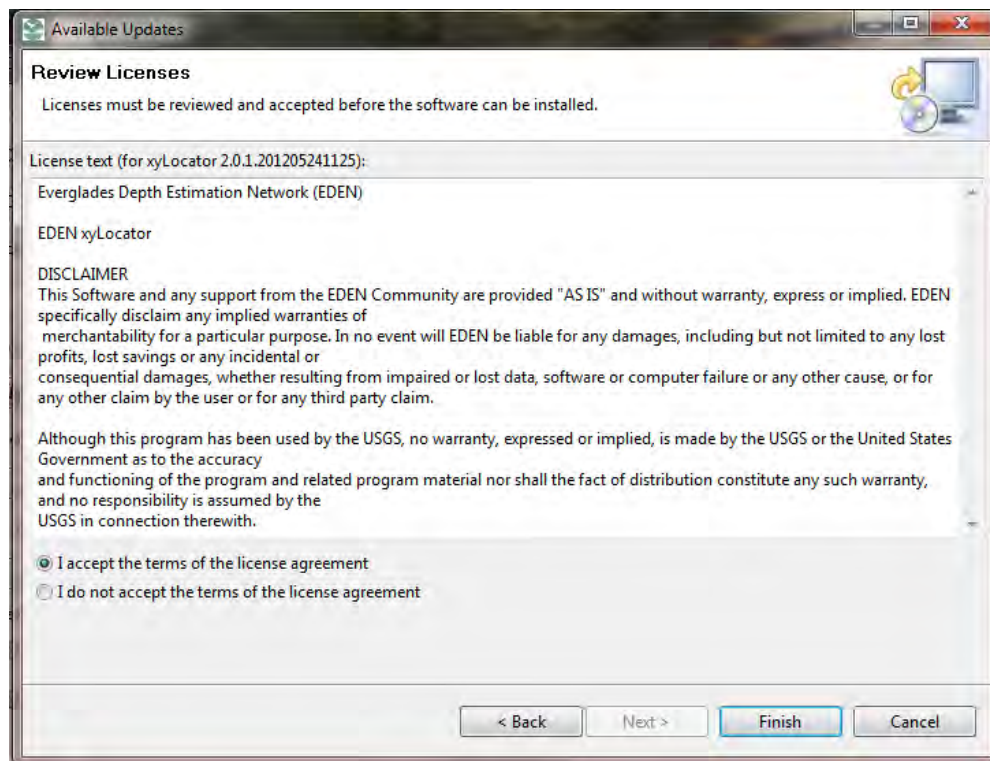
Each time the Depth&DaysSinceDry program is started up, the program checks to see if any updates are available. If there is an update, an “Update Available” box appears:



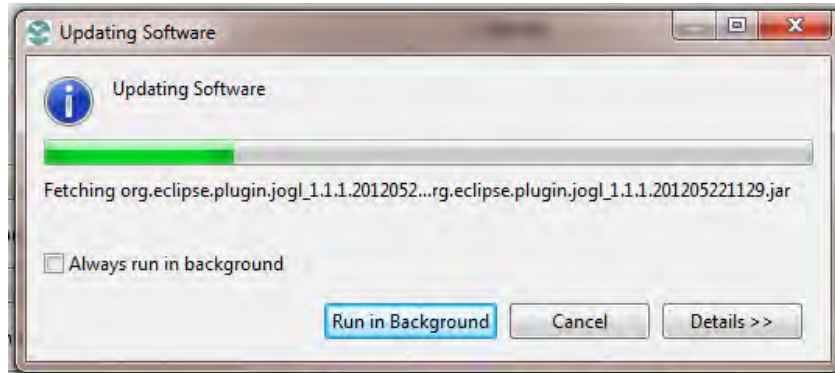
If you wish to update the tool, click on the “Updates Available” box and an “Available Updates” dialog opens:



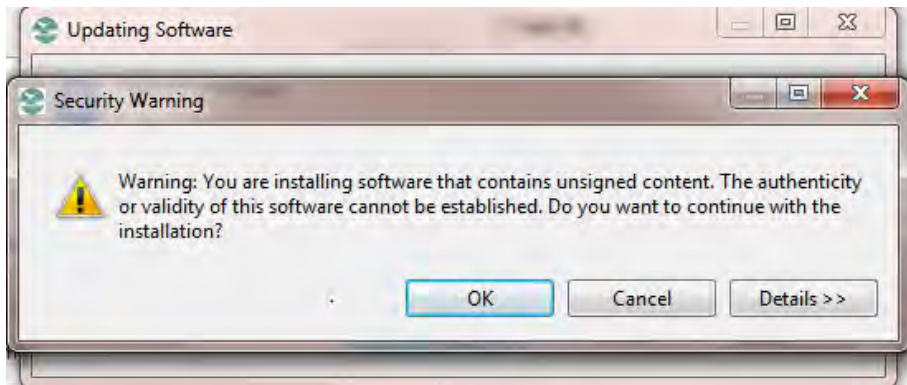
Check the updates that you like to install and hit the “Next” button:



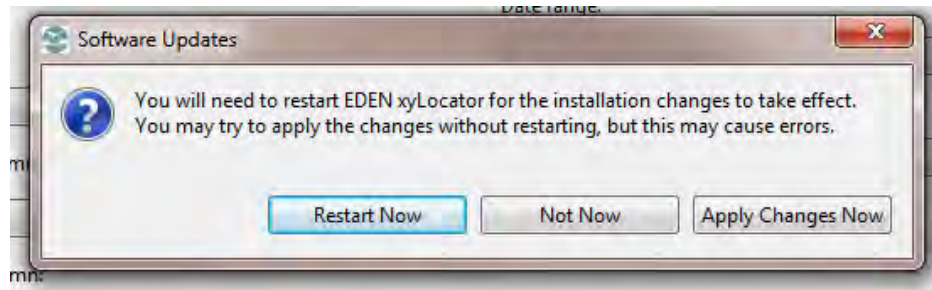
When you accept the license agreement, the “Finish” button is enabled. Click the “Finish” button to begin the software update. An “Updating Software” dialog appears:



Please ignore the “Security Warning” message (if displayed) and click “OK” for the software update to complete:



Finally, click the “Restart Now” button for the installation changes to take effect:



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Developed for Everglades Depth Estimation Network (EDEN) through a partnership with the USGS National Wetlands Research Center's Advanced Application team.



For more information, contact Pamela Telis, [patelis@usgs.gov](mailto:patelis@usgs.gov).

<http://sofia.usgs.gov/eden>