

CDEC Data Retrieval Plug-in

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Introduction

The CDEC data retrieval plug-in is an optional capability that will retrieve data from the California Data Exchange web site and store that data into an HEC-DSS file. This plug-in is being provided in a beta form, usable in HEC-DSSVue Version 1.2 and other applications. It will be updated on the HEC web site as modifications become available.

An HEC-DSSVue plug-in is a set of Java software that is compiled and put into a Java “.jar” file. By simply placing this file into the HEC-DSSVue Plugins directory, it is automatically loaded and accessible from the HEC-DSSVue program. The purpose of a plug-in is similar to the jython scripting capability that is available in HEC-DSSVue. However, since plug-ins are written in the Java language, which is used by HEC-DSSVue, there are extended capabilities and controls available. The plug-in code can access the HEC-DSSVue API (Application Program Interface) directly. Typical uses for plug-ins are: complex mathematical operations; specialized formatting of data for entry into another application (such as a program that uses a “card format”); and, retrieval of data from a web site.

An example of the CDEC data retrieval plug-in screen is given in Figure 1. It can retrieve a variety of hydro-meteorological and environmental data from CDEC for stations throughout the state of California. You must enter the station information (station ID, sensor, duration code, and time window) manually into the plug-in table. The plug-in has no capability to identify which stations and what data is available from CDEC. Station ID and data availability can be obtained from the CDEC web site at: <http://cdec.water.ca.gov>.

Usage

Plug-ins can be used by HEC-DSSVue Version 1.2 and later. To activate the CDEC plug-in, the CDEC.jar file is downloaded and placed in directory “Program Files\HEC\HEC-DSSVue\Plugins”, if it has not been installed already. To un-install a plug-in, simply remove it from the Plugins directory. When you run HEC-DSSVue, it detects plug-ins in the Plugins directory and automatically loads them.

To utilize the CDEC plug-in you must be connected to the internet. Run HEC-DSSVue, open the HEC-DSS file that you want to store the retrieved data in and then select the CDEC button on the main toolbar. This will open the CDEC Download plug-in interface with an empty station identifier table. From here, you can either open a previously saved table or manually enter the station information for the stations that you want.

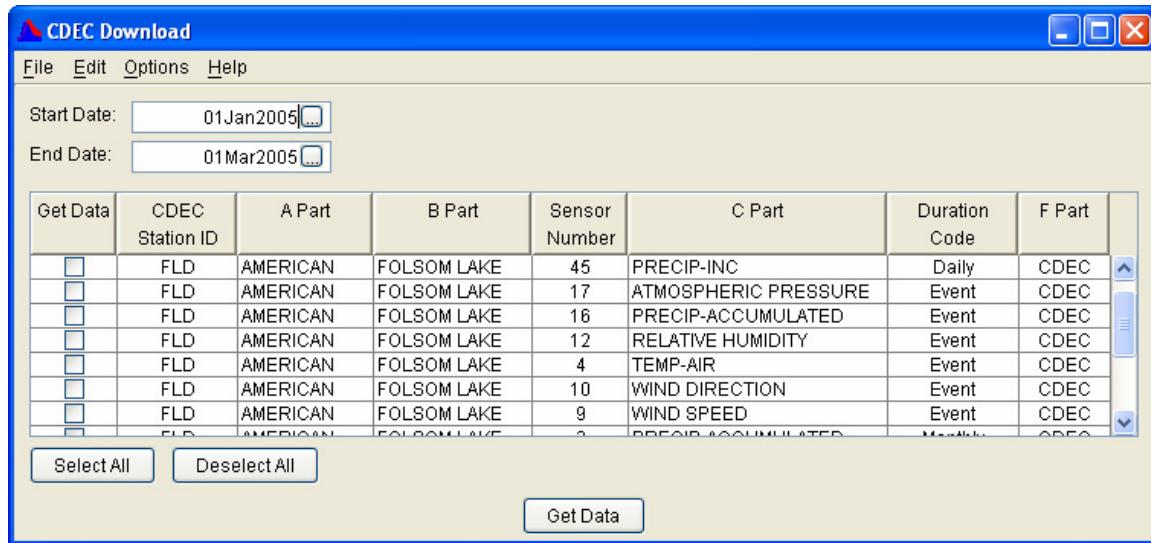


Figure 1 CDEC Plug-in Screen

Station ID Table

To open a previously saved table, select the **File** menu and then **Open**. Browse to the directory and file that you want to access and then press the **Open** button. Optionally, you can select a file from the most recently used file list at the bottom of the **File** menu. To save a table, select the **File** menu and then **Save**. Browse to the directory where you want to save your table and then enter the file name and press the **Save** button.

To manually enter station information, select the CDEC Station ID cell on a blank row. Enter the CDEC station ID code and then fill in the A part (basin or river name), B part (location name), sensor number, C part (parameter), and F part (version) in the subsequent columns. You must also select the duration code from drop-down box in the table for each row. (Note: The duration code is how CDEC provides the data, not necessarily how you want it stored to HEC-DSS.) If you need to add additional rows, select the **Edit** menu and then **Insert Rows**. Fill in the identifiers for any remaining stations that you want. Once you have completed your table, save it using **Save** from the **File** menu.

You can get a list of all sensor numbers, PE Codes and other information that CDEC has available by selecting **Stations Definitions** from the **Options** menu, as shown in Figure 2. These are the codes that CDEC uses, not necessarily what is available for each station. CDEC uses four duration codes: **Monthly**, **Daily**, **Hourly** and **Event**. The appropriate code must be selected from the drop-down list from the cell in the **Duration Code** column. The duration must correspond to how the data is stored in CDEC, not necessarily how you want the data stored to HEC-DSS.

The screenshot shows a Windows-style dialog box titled "Station Definitions". The table has columns for Sensor No., Sensor, PE Code, Description, Units, DSS Parameter, and DSS Units. The data includes various environmental sensors like River Stage, Rainfall, Snow Water Content, Temperature, Electrical Conductivity, Reservoir Elevation, Reservoir-Scheduled Release, Full Natural Flow, Wind Speed, Wind Direction, and Fuel Moisture. The "Close" button is visible at the bottom right.

Sensor No.	Sensor	PE Code	Description	Units	DSS Parameter	DSS Units
1	RIV STG	HGHZZZ	RIVER STAGE	FEET	STAGE	
2	RAIN	PCHZZZ	PRECIPITATION-ACCUMULATED	INCHES	PRECIPITATION-ACCU...	
3	SNOW WC	SWHZZZ	SNOW-WATER CONTENT	INCHES		
4	TEMP	TAHZZZ	TEMPERATURE-AIR	DEG F	TEMPERATURE-AIR	
5	EL CND	WCIZZZ	ELECTRICAL CONDUCTIVITY MILLIS	mS/cm	EC	UMHO...
6	RES ELE	HLHZZZ	RESERVOIR ELEVATION	FEET	ELEVATION-RESERVOIR	
7	REL SCH	QZIZZZ	RESERVOIR-SCHEDULED RELEASE	CFS	FLOW-RESERVOIR SC...	
8	FNF	QMIZZZ	FULL NATURAL FLOW	CFS	FLOW-FULL NATURAL	
9	WIND SP	USIZZZ	WIND-SPEED	MPH	WINDSPEED	
10	WIND DR	UDIZZZ	WIND-DIRECTION	DEG	WINDDIRECTION	
11	FUEL MS	MMIZZZ	FUEL MOISTURE-WOOD	%		

Figure 2 Station Definitions Table

Retrieving Data

To retrieve data from the CDEC web site and import into HEC-DSS, open or fill-in the station table as described above, and then enter the start date and end date for the time frame that you want data for. (The date boxes cannot be empty like they can for the USGS plug-in.) The date should be entered in the form of DDMMYY (e.g., 03FEB2005). Selecting the small box in the date field will provide a calendar tool to aid in setting the date. Even though you may specify dates, only data that is available within those dates from the web site can be retrieved. You should check the CDEC web site (at <http://cdec.water.ca.gov>) to verify what data is available for the stations that you are interested in.

After the data type and time span have been set, select the stations from the table that you want data for by checking the box in the **Get Data** column for those stations. If you want to retrieve data for all stations in your table, press the **Select All** button. The data retrieval process will begin when you press the **Get Data** button. This operation will take some time, depending on your connection speed to the internet and how much data you have requested. A **Retrieve Progress** dialog box, as shown in Figure 3, will display the progress of the process. After data has been retrieved, the main catalog screen in HEC-DSSVue will be automatically updated.

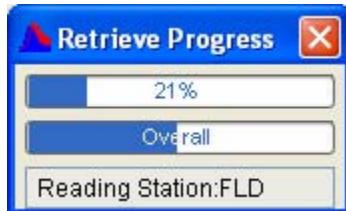


Figure 3 Retrieve Progress

Monthly, daily and hourly data will be stored with an E part of “1MON”, “1DAY”, or “1HOUR”, respectively. Event data will be store in an irregular-interval format with an E part of “IR-MONTH”. You may want to use the interval modification functions available from the **Time Conversion** tab in the **Math Functions** screen to change the data to a desired interval.

Limitations

The CDEC plug-in currently has limited error detection capabilities. If you think that there are problems, you should check the HEC-DSSVue log screen for messages. The log screen is usually minimized in your task bar.

The CDEC plug-in will indicate when data cannot be retrieved, but it may not give the reason why. You should check the CDEC web page with a browser to ensure that what you are requesting is available. The web address is: <http://cdec.water.ca.gov>.